LINGUISTIC CHANGE IN A NONSTANDARD DIALECT

Phonological studies in the history
of English in Ireland

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ABBREVIATIONS AND NOTATIONAL CONVENTIONS

BV	Belfast Vernacular
C	consonant
CUS	Conservative Ulster Scots
EModE	Early Modern English
ESc	Early Scots
HE	Hiberno-English
ME	Middle English
MUE	Mid Ulster English
OE	Old English
RP	Received Pronunciation
SSE	Southern Standard English
SUE	South Ulster English
SUS	Standardised Ulster Scots
US	Ulster Scots
V	vowel

Phonetic transciption.

The phonetic symbols and diacritics used throughout the thesis have their International Phonetic Association values, with the following exceptions:

[ɾ] = retroflex (median) approximant

[l'] = palatalised alveolar lateral

[̧] = lowered (e.g. [ȩ])

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INTRODUCTION

English has been spoken in Ireland in some form or other for around 800 years. It initially became established during the century or so after the Norman invasion of 1170 when English-speaking tenants settled eastern parts of the country and the coastal towns. However, at this stage it made little headway against Irish which remained the language of the majority of the population. In fact by the early sixteenth century English was more or less extinct in Ireland except in a few enclaves on the east coast.[1] The dialects of English spoken in Ireland today are for the most part direct descendants of the language of British colonists who arrived during the Plantations of the late sixteenth and early seventeenth centuries. The subsequent economic and political history of Ireland has ensured that the second infusion of English has had a more lasting impact than the first. It has progressed to the stage where it is now the majority language in Ireland. Irish as a first language survives in the Gaeltacht areas of the west coast, although it has been elevated to the status of primary official language by the constitution of the Irish Republic.

There is some disagreement among scholars over what the English language as spoken in Ireland should be called. At first sight Irish English would seem to be a fairly straightforward and self-explanatory term. However, it is unsuitable for the reason that it is sometimes taken to refer to English as used by speakers whose mother tongue is Irish. Anglo-Irish is not of much use either in this context, since it has in the past been used ambiguously to refer to people of English descent, to literature written in English by natives of Ireland, and by at least one expert to the variety already described as Irish English (Henry 1977). Recently the term Hiberno-English has gained currency among scholars (e.g. Bliss 1972; Sullivan 1980; Barry 1982), and it is now enshrined in the title of the Tape-Recorded Survey of Hiberno-English Speech (Adams et al 1976). Since I am not in the business of contributing to further proliferation of terminology, this is the label I will adopt here. Despite an attempt by one author to restrict its application to dialects directly descended from those spoken by the

English (as opposed to Scottish) colonists of the seventeenth century (Henry 1977), I prefer to follow a more widely accepted, general usage. That is, Hiberno-English as interpreted here refers to any type of nonstandard English spoken in Ireland as a first language, whether it derives ultimately from English, or Scots, or some Irish-English 'creole', or any combination of these. Some varieties spoken in the north which are clearly Lowland Scots in type have been given the name Scotch-Irish by several researchers (see especially Gregg, all references). This name, which was originally applied to Ulster Presbyterians who settled parts of North America during the eighteenth century, has largely been superseded by Ulster Scots in recent work. It is the latter term that I adopt here.

It is not my aim to write a unified history of the English language in Ireland, since this has already been undertaken elsewhere (e.g. Hogan 1927; Bliss 1977, 1979; Barry 1982). Rather I wish to concentrate on several specifically phonological developments which allow us to disentangle the competing but sometimes complementary influences exerted by Irish, English and Scots on Hiberno-English (henceforth HE). This emphasis reflects an attempt not only to chart the historical developments in greater detail than has been done hitherto but also to contribute to our theoretical understanding of phonological change. For various reasons the focus is for the most part on northern HE. For one thing, a detailed history of southern HE is already available (Bliss 1979). Secondly, much of my own research has been undertaken in the north, particularly while I was working on the project Sociolinguistic variation and linguistic change in Belfast (L Milroy et al 1983). Most importantly, however, northern HE with its mixed linguistic heritage offers a rich and relatively untapped source of data for investigating the extent to which dialect contact may be implicated in phonological change. Despite the emphasis on northern HE, I draw on comparative material from southern dialects throughout the following pages.

It is often remarked that, in contrast to the relative homogeneity of southern HE, the linguistic situation in the north of Ireland is quite varied (e.g. Adams 1977: 56). In fact Adams (1973) finds it convenient to recognise at least seven basic northern varieties spoken in an area with a population of just under two million. This diversity is in part a reflection of the complex interaction of Scots and English influences in the north, in addition to the contribution of Irish which has left its mark to varying degrees on all types of HE. It is the Scots element in particular that distinguishes much of northern from southern HE.

Almost everything that has ever been written on HE stresses the supposed effects of Irish Gaelic contact with English on its development. I take up this issue in a treatment of HE consonant phonology in Chapter 3 and give it more detailed attention elsewhere in a discussion of the growth and structure of the HE verb phrase (Harris 1982). Although this is clearly an important area, it has been much discussed and it is not my intention to go over the same ground here. Rather the focus in this thesis is on two other aspects of language contact in the north of Ireland. Firstly, I examine the linguistic developments that have arisen from contact between the typologically divergent phonological systems of English and Scots dialects. Secondly, I attempt to isolate several changes which reflect contact between nonstandard HE and modern standard British varieties.

In Chapter 1 I describe the main types of northern HE that can be identified according to the different ways in which the tensions between English and Scots influences have been resolved. The conditions of contact are in many ways similar to those that obtained in the early stages of British settlement in North America. It therefore comes as no surprise to discover close linguistic parallels between certain United States and Canadian dialects on the one hand and northern HE on the other. These similarities also reflect the fact that the major British colonisation of Ireland was roughly contemporary with that of North America. Hibernian and American dialects of English display many common seventeenth-century features which have since been lost from standard British varieties.

The tension between Scots and English influences in northern HE manifests itself most clearly in the area of vowel phonology. Some dialects display a typically English system in which vowel length is phonemic. That is, in these varieties it is possible to identify one subsystem of inherently long vowels and another of inherently short vowels. In characteristically Scots dialects, on the other hand, vowel length is to a large extent phonetically conditioned. Between these two types lies a range of 'mixed' dialects which show varying degrees of compromise between phonemic and positional length. The diffusion of the English and Scots length patterns across different dialects, vowels and phonological environments can be expressed in terms of implicational hierarchies which I set up in Chapter 2. I also examine the phonetic facts which can plausibly be said to determine the order of segment-types on the hierarchies.

In Chapter 3, I attempt a partial reconstruction of the internal history of the urban HE vernacular spoken in Belfast. By inspecting present-day sociolinguistic variation for signs of change in progress and checking the results against historical records, it is possible to identify the main phonological developments that have occurred over the last century or so. Comparative material from the city's rural hinterland dialects and from the descendants of the original British source dialects allows us to chart the continuing competition between English and Scots linguistic features. It is also possible to offer a fairly clear picture of the sorts of adaptive change that have been taking place in the vernacular as a result of contact with external standard norms.

Thanks to its conservative nature, HE provides the historical phonologist with an invaluable store of archaic patterns of distribution which were once current in Early Modern English but which have since disappeared from standard varieties. Through direct observation of this material it is possible to gain new insights into some of the well-known problematical issues of English historical phonology. One of these, which I take up in Chapter 4, concerns the fate of Middle English (ME) /ɛ:/ (as in meat) in Southern Standard English. According to some interpretations, it merged with ME /a:/ (as in mate), only to reseparate and undergo merger with ME /e:/ (as in meet). Belfast Vernacular is one of several modern dialects in which these vowels remain three-way distinct. Comparative reconstruction of the changes that have produced the current reflexes in these dialects contributes to our understanding of what might have happened to ME /ɛː/ in the Southern Standard. In addition, the results have a bearing on the wider issue of the sorts of strategy that can be implemented to avoid merger during chain-shifting. In Chapter 5, I examine the other side of the coin. I identify different ways in which phonological merger is achieved and suggest how these might be modelled in terms of rules and representations. I take up the issue of falsely reported mergers and discuss some of the theoretical and methodological implications.

It is a commonly held belief that there is a general trend towards dialect convergence in English as a result of the standardising pressures exerted by universal education and the media. However, recent sociolinguistic work suggests that, while old rural dialects may be in decline, diversification is continuing in recently evolved urban vernaculars (see Labov 1972a: 324; 1980a: 252). A survey of the changes that have affected Belfast Vernacular over the last 120 years or so does indeed confirm that a degree of standardisation has taken place. However, this has been restricted for the most part to the lexical incidence of phonemes. At the phonological level, almost no major structural alignment with Southern Standard English has taken place. Indeed, evidence from change in progress suggests that some internal innovations are actually moving in directions which run counter to standard norms.

Footnote to Introduction

1. The type of English originally spoken by the Anglo-Norman colonists no longer has any direct descendant in Ireland, although traces of it survived into the nineteenth century in the baronies of Forth and Bargy in Co. Wexford and in the district of Fingal stretching northwards from Dublin. What little documentation we have of these dialects indicates an extremely conservative form of English (with largely pre-Great Vowel Shift phonology) which had been subject to considerable interference from Irish (see Poole 1867; Ó Muirithe 1977b).

Chapter One

OUTLINE OF NORTHERN HIBERNO-ENGLISH PHONOLOGY

> Most attempts at drawing the major dialect boundaries within HE have been based on differences in vocabulary, vowel quality, consonant phonetics or the lexical distribution of phonemes (e.g. Henry 1958; Gregg 1972; Barry 1981a). However, from the point of view of historical reconstruction, a more satisfactory classification is one which is based on vowel-quantity differences. This allows us to discern more clearly the competing influences of English and Scots source dialects on HE. According to the typology adopted here, HE dialects can be characterised as 'more English' or 'more Scots'. Dialects that are English in type display phonemic vowel length, having one set of inherently short and one of inherently long phonemes. In typically Scots dialects, on the other hand, vowel quantity is to a large extent phonetically conditioned. The manner in which the English language was transported to Ireland has meant that the geography of the Scots-English linguistic divide in Britain has broadly speaking been reproduced in Ireland. Thus southern HE is essentially English in type, while the dialects spoken in the extreme north of the island are Scots in type. Between these two lies a range of transitional dialects with vowel-length characteristics that exhibit in varying proportions a compromise between the English and Scots systems. In this chapter I provide brief phonological descriptions of the three main dialect-groups in the north of Ireland that can be identified on the basis of the vowel-length typology: a north Ulster Scots type, a south Ulster English type and a 'mixed' type spoken in mid Ulster.

1.1.0 English in the north of Ireland

1.1.1 Introduction. The object of this chapter is to provide an outline of the segmental phonology of the three main types of HE spoken in the north of Ireland.[1] Most of my attention is focused on the systemic organisation and lexical distribution of vowel phonemes, since these offer the greatest insight into the typological differences among the dialects. However, I also include a brief summary of the most important aspects of consonant phonology. I have introduced details from the recent history of English as well as comparative material from other present-day English dialects in the hope that this will aid the presentation in two ways. Firstly, the wider perspective should provide familiar points of reference for those who have little or no knowledge of HE. Secondly, the comparative material is a necessary component in any discussion of the development of HE, since the contribution of British source dialects must obviously be taken into account.

Throughout this chapter I refer to the development of northern HE phonemes from their Middle English or Early Scots sources. This is not to imply that the developments have occurred exclusively in HE. Most of the major phonological changes referred to in fact had already taken place in the British source dialects before English was introduced into Ireland on a large scale in the seventeenth century. Nevertheless some of the developments are indeed peculiar to Ireland, and I have set myself the task in the succeeding chapters of isolating the most important of these and discussing them in some detail.

1.1.2 Historical background and dialect boundaries. The term 'north of Ireland' is taken here to refer to an area roughly equivalent to the nine northernmost counties of Ireland which comprise the historical province of Ulster, i.e. Cavan, Donegal, Monaghan and the six counties of Northern Ireland: Antrim, Armagh, Derry, Down, Fermanagh and Tyrone. The English spoken in the north warrants separate consideration from that spoken in the rest of Ireland, because it reflects the peculiar history of the area. It was during the Plantation of Ulster in the seventeenth century that English was first introduced into the north of Ireland on a large scale, when Scottish and English settlers were given land that had been confiscated from the native Irish-speaking population by the British authorities. Scottish planters (predominantly from southwest Scotland) were concentrated in the north and east of Ulster but made their presence felt throughout the province, outnumbering the English colonists by almost 6:1. The majority of the latter came from the northwest Midlands and southwest of England and settled the Lagan Valley stretching southwestwards from Belfast Lough.[2] English is now spoken in most areas of Ulster, the domain of Irish as a first language being restricted for the most part to the Donegal Gaeltacht in the extreme west of the province (see Ó Dochartaigh 1983). These settlement patterns, although somewhat blurred by subsequent internal migration, are still reflected in the present-day linguistic geography of the area. Irish, Scots and English have all left their mark in varying proportions on the different types of HE spoken in Ulster.

Dialectologists have concentrated on differences in vocabulary, vowel quality and the lexical distribution of phonemes when drawing linguistic boundaries within HE, e.g. between northern and southern HE (Barry 1981a) and between Ulster Scots and other HE dialects (Gregg 1972). However, from the point of view of historical reconstruction, a more satisfactory classification is one based on vowel quantity differences, since this enables us to discern more clearly the competing influences of English and Scots source dialects. According to this typology, HE dialects can be categorised as 'more English' or 'more Scots'. A typically English dialect in this sense is one which preserves a reflex of the West Germanic system of phonemic vowel length, having one set of inherently short and one of inherently long stressed vowel phonemes (Lass 1976: 54-56). Scots dialects, on the other hand, are characterised by the disruption of this dochotomous pattern, resulting in the loss of phonemic length: vowel quantity is to a large extent conditioned by the phonetic environment. The manner in which the English language was imported into Ireland has meant that the geography of the Scots-English linguistic divide in Britain has broadly speaking been reproduced in Ireland. The most northerly HE dialects are clearly Lowland Scots in type, whereas southern HE varieties have more in common with the dialects of England. Between these two extremes lies a range of transitional dialects with phonological characteristics that exhibit in varying proportions a compromise between the Scots and English systems. According to the vowel length typology, we can recognise three broad categories of northern HE (see Fig 1-1):

(a) Ulster Scots (US) as spoken in parts of the north and northeast of Ulster (most of Co. Antrim, northeast Down, and parts of Co. Derry and Co. Donegal);[3]

(b) South Ulster English (SUE) as spoken in the extreme south of the province (south Armagh, south Monaghan, north Cavan, south Fermanagh and south Donegal); and

(c) Mid Ulster English (MUE), which is spoken in an area between those of US and SUE (the Lagan Valley, stretching southwestwards from Belfast Lough, south Tyrone, north Monaghan, north Fermanagh and some coastal parts of central Donegal).[4] In terms of number of speakers, MUE is the dominant variety in Ulster. It is spoken in Belfast, the most economically important and populous city in the north, and is the dialect upon which the regional standard pronunciation is based.

US, which is spoken in areas where Scottish settlement was at its densest, is recognisable as a dialect of Lowland Scots by, among other things, its typically Scots pattern of conditioned vowel length. MUE, which is spoken in areas where Scottish influence was offset by the presence of English settlers, is a 'mixed' type in that it has a modified Scots vowel length pattern, in which English elements are discernible. SUE, which is spoken in areas where the predominant non-Irish influence was English rather than Scottish, can be seen as a transitional dialect between southern HE on the one hand and US and MUE on the other, since it combines the English dichotomous pattern of phonemic vowel length found in southern HE with some typically northern features of vowel quality. Because of the importance of vowel quantity differences in this typology of HE dialects, attention will be focused here on the vowel phonology of northern HE and in particular on how elements of both US and SUE are combined in MUE.

The influence of Irish can be seen to varying extents in most types of northern HE. It is obviously most marked in the Donegal Gaeltacht where English is spoken as a second language, but it is also clearly discernible in dialects spoken in some peripheral areas of Ulster where Irish survived until recently. Many nonstandard features of Ulster HE phonology have been ascribed to Irish interference (see especially Adams 1966), but the evidence is somewhat ambiguous and the contribution of seventeenth-century Scots and English regional dialects is not to be underestimated. I take this issue up in 3.7.

Northern HE dialects exhibit many phonological characteristics

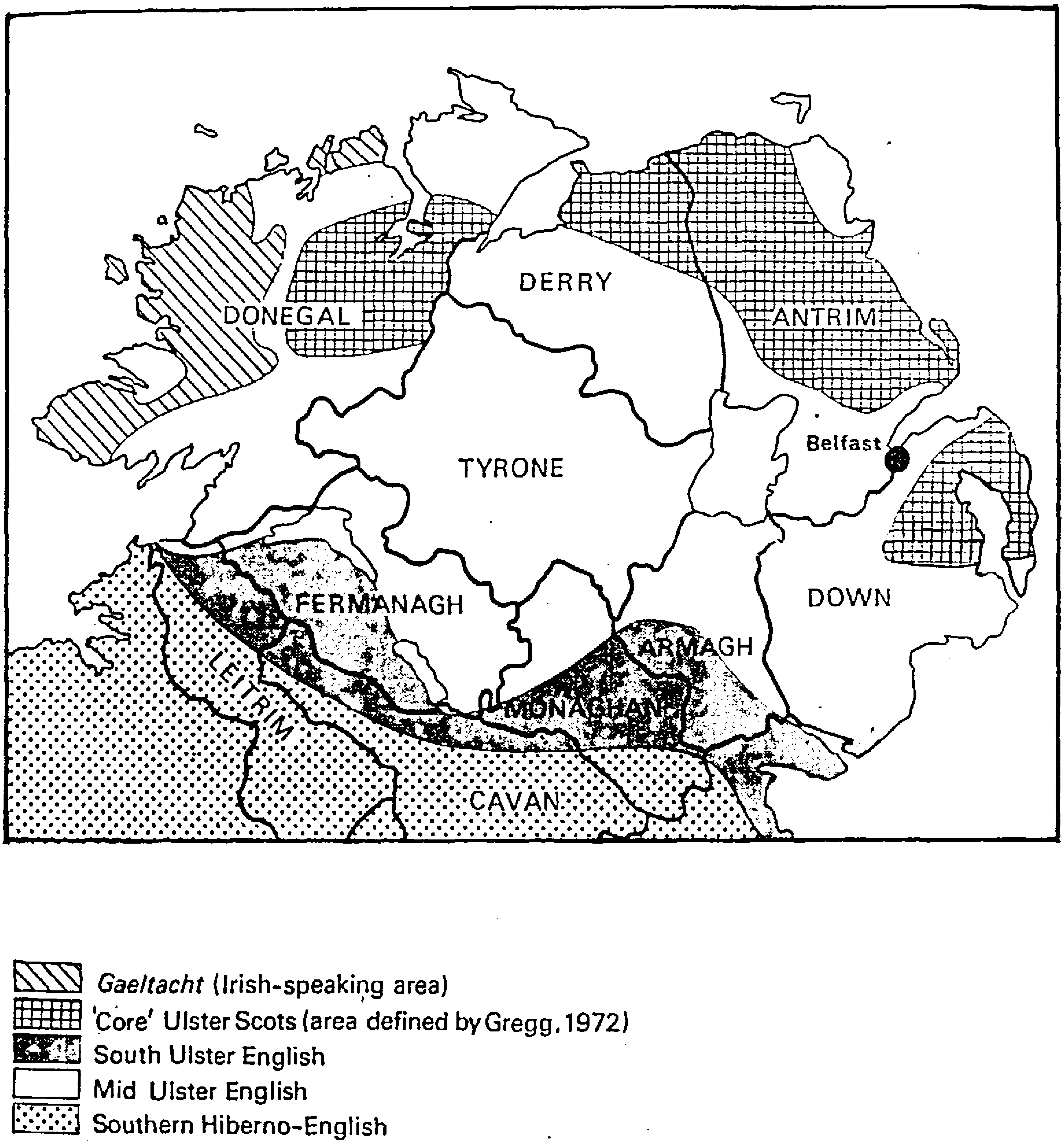


Fig 1-1 Approximate boundaries of northern Hiberno-English dialects. (Reproduced from Harris 1983.)

that are general throughout Ireland. These include: the retention of historical /r/ in all positions including preconsonantally; the (often extreme) palatalisation of /k, g, ŋ/ in the environment of front vowels; the realisation of /l/ as clear in all positions; the merger of the Middle English (ME) /ɛ:/ class (e.g. *meat*) with ME /a:/ (e.g. *mate*) rather than with ME /e:/ (e.g. *meet*); the preservation of certain vowel oppositions before historical /r/ where they have been neutralised in RP, e.g. /ɛrn/ *earn* vs /ʌrn/ *urn*, /fɔr/ *for* vs /for/ *four*; and the failure of ME /a/ to back-round after /w/, e.g. /want/ *want*.

Phonological characteristics that distinguish northern from southern HE include: the realisation of /u(:)/ (in *boot*) as central [ʉ(:)] in the north but as back [u:] in the south; a higher than half-close, overrounded articulation of /o/ (in *boat*) in the north versus lower than half-close in the south; the realisation of /θ, ð/ as fricatives in the north but as stops in the south; and the absence in the north of the southern spirantisation of final voiceless stops, e.g. northern [bɔ̈t˺] *but* vs southern [bɔ̈ç̥]. The main vowel-length differences between the 'more English' and 'more Scots' dialects of HE are readily recognised in the reflexes of ME/Early Scots /e:, o:/ (*feed*, *food*) and /e, a, o/ (*bed*, *bad*, *pod*). In southern HE and SUE the former remain inherently long, the latter inherently short. In US and MUE, on the other hand, ME/Early Scots /e:, o:/ are positionally short or long, while historical /e, a, o/ have been lengthened, unconditionally in some dialects, conditionally in others.

1.2.0 *Ulster Scots vocalic phonology*

1.2.1 *Conservative and standardised US.* With few exceptions, most of the published work on US has focused on Co. Antrim. Two glossaries, those of W.H. Patterson (1880) for Antrim and Down and Traynor (1953) for Co. Donegal, are interesting for the light they shed on the Scots background to a large part of US lexis, but neither provides much in the way of phonological analysis. Adams (1956) analyses entries for Co. Antrim in Wright's *English dialect grammar* (1905) but suggests that much of the fieldworker's transcription is inaccurate, especially with regard to the recording of vowel quantity. The most valuable published research on US, particularly the type spoken in mid Antrim, is that of Gregg. Using an essentially Jonesian framework (as outlined in Jones 1950, 1956), Gregg gives detailed phonetic and phonemic descriptions of rural US (1958) and urban US (1964) as well as an account of the historical background to the dialects in question (1959). The latter, however, suffers from a surfeit of detail on Old Norse, Old French and Old English to the exclusion of important points regarding the development of US and its immediate ancestors from Early Scots (ESc). Gregg also tackles the problem of defining the boundaries of US as against MUE, which he does on the basis of lexical, morphological and phonological isoglosses (1963, 1972). He also attempts to place the development of particular US vowels in the wider perspective of dialects of English spoken outside Ireland, particularly those of North America (1973, 1975). In this presentation of US phonology I have drawn partly on Gregg's work and partly on my own observations made while studying the records of the Tape-Recorded Survey of Hiberno-English.

It is necessary to draw a distinction within US between a conservative variety (CUS) spoken mostly in rural areas and a standardised type (SUS) (see Gregg 1958, 1964). In the towns that lie within the US-speaking area (e.g. Larne, Ballymeana, Coleraine), SUS is now used almost to the exclusion of CUS, although some relic conservative forms persist in nonstandard speech. Many speakers in US rural areas are bidialectal, and in many cases it is possible to recognise a classic diglossic situation (albeit on a small scale), in which CUS constitutes the Low and SUS the High variety (see Douglas-Cowie 1978, 1983). In this respect, CUS and SUS are equivalent to Lowland Scots and Scottish English respectively (see Aitken 1983a). CUS (which is still referred to in the north of Ireland as 'broad Scotch') and Lowland Scots are the result of uninterrupted developments from ESc. SUS and Scottish English, on the other hand, are essentially varieties of near-standard English incorporating largely standard grammar and lexis and pronounced with a Scottish accent. The most obvious differences between CUS and SUS are to be found in the areas of morphology and the lexicon. CUS contains a large stock of Scots lexical items which have no direct cognates in standard English. Skea (1982) reports on the extent to which specifically Scots vocabulary is being lost in north Down, an area where CUS appears to be gradually dying out. CUS is characterised by a large number of nonstandard morphological forms which are generally absent from corrected SUS, e.g. the negative forms dinnae, cannae, hinnae, maunae (for standard don't, can't, haven't, mustn't).

At the phonological level, CUS and SUS share essentially the same phoneme system and allophonic realisation rules. The two varieties, however, differ quite widely in the lexical distribution of vowel and to a lesser extent consonant phonemes. CUS preserves a typically Scots phonemic distribution, the present-day vowels being for the most part the outcome of continuous developments from ESc. In SUS, lexical items have been reallocated to the phoneme classes that are nearest to the equivalent standard ones. Some of the typically Scots phonological characteristics that are generally abandoned in SUS are:

- an undiphthongised reflex of ESc /u:/, e.g. CUS /kʉ/ cow;

- a lowered and unrounded reflex of ESc /o/ before labials, e.g. CUS /tɑ:p/ top;

- the merger of ESc word-final /ei/ (from earlier /e/ plus a palatal or velar) with present-day /i/, not /əi/ or /ɑe/, e.g. CUS /di/ die;

- a front unrounded reflex of ESc /ø:/ (from earlier /o:/, e.g. CUS /blï̆d/ blood;

- preservation of early front-raising of ESc /a/ in certain environments, e.g. CUS /fɛ:rm/ farm;

- a front raised reflex of ESc /a:/ < Old English /ɑ:/ (the usual northern English development, e.g. CUS /he:m/ home) except in labial-velar environments where /ɑ:/ or /ɔ:/ occurs (e.g. CUS /twɔ:/ two).

Typically Scots consonantal features in CUS include the retention of original /x/, e.g. /bɔ:xt/ bought, and the vocalisation of word-final /l/, e.g. /bɔ:/ ball.

1.2.2 The Ulster Scots vowel system. The maximal system of CUS stressed vowel phonemes, together with sample lexemes in which they occur, is as follows:

(1)

æ̈	bit, blind	ɛ:	bet, grass	əi	bite, stay
ʌ	but, wit	ɑ:	bat, top	ɑe	dive, my
ɪ̈	foot, cool	ɔ:	pot, ball	əʉ	old, grow
i	feet, eye	e:	gate, home	ɔe	noise, boy
ʉ	trout, now	o:	boat, go		

As already pointed out, one of the most striking features of US vocalic phonology is the disruption of the original English pattern of vowel length. In US, as in present-day Lowland Scots and Scottish English, there is no dichotomous pattern of long and short vocalic subsystems along the lines of RP (see Gimson 1965: ch 7). The vowel phonemes of present-day US can be grouped into three categories according to their quantity characteristics:

(2)

Ia. /æ̈, ʌ/
 b. /e:, o:, ɔe/
II. /ɛ:, ɑ:, ɔ:/
IIIa. /i, ʉ, əi, ɑe/
 b. /ɪ̈/
 c. /əʉ/

Groups I and II in (2) exhibit phonemic length (i.e. they are either inherently short or inherently long), although not necessarily along the lines of the original ESc quantity pattern. The vowels in group I preserve their historical quantity characteristics: /æ̈/ < Esc /i/ and /ʌ/ < ESc /u/ remain short in all environments; /e:/ < ESc /a:/, /o:/ < ESc /ɔ:/ and /ɔe/ < ESc /oi/ remain long everywhere. The group II vowels have switched their historical quantity values: /ɛ:, ɑ:, ɔ:/, the reflexes of ESc short /e, a, o/ respectively, are now long in all stressed contexts. In group III, quantity is no longer phonemic but is now conditioned by the following environment. US /ɪ̈/ < ESc /ø:/ is long before /r/ and short elsewhere. /əʉ/ < ESc /ou/ is short before a voiceless consonant or before a sonorant followed by a voiceless consonant and long elsewhere. US /i, ʉ/ and to a large extent /əi, ɑe/ (but see 1. 2. 3 for reservations) conform to the set of Scots vowel length conditions often referred to as the Scottish Vowel Length Rule (first explicitly formulated by Aitken in mimeo form (1962, 1975) but not published until 1977). Also referred to as Aitken's Law (Lass 1974, 1976: 54; Vaiana 1972, Vaiana Taylor 1974), the rule can be summarised as follows (see also Aitken 1981, 1983b; McClure 1977):

(3)

With the exception of the reflexes of ESc /i, u/,
stressed vowels are long
- before /r, v, ð, z/;
- in hiatus;
- before a boundary;

and short elsewhere.

The effect of these conditions on the realisation of US /i, ʉ/ is illustrated by the following CUS forms:

(4)

Short	/i/	/ʉ/
_ voiceless stop	feet	out
_ voiced stop	feed	loud
_ voiceless fricative	piece	house
_ nasal	keen	drown[5]
_ lateral	feel	–
Long	**/i/**	**/ʉ/**
_ voiced fricative	sneeze	bruise
_ /r/	fear	sure
_ vowel	Fiat	shower
_ #	die	brew
_ + consonant	died	brewed

The presence of the inflectional boundary among the Aitken's Law conditions in (3) means that US shares with modern Scots such minimal pairs as [did] dead : [di:d] died (CUS), [tɜid] tide : [tɑ·ẽd] tied (SUS) and [bɹʉd] brood : [bɹʉ:d] brewed (SUS).

The synchronic vowel quantity conditions of Aitken's Law are the result, Lass suggests, of two related historical processes (1976: 54):

(5) (a) Long vowels and diphthongs shorten everwhere except before /r, v, ð, z/, a vowel or a morpheme boundary.

(b) The nonhigh short vowels /e, a, o/ and the diphthong /ai/ lengthen before /r, v, ð, z/, a vowel or a morpheme boundary.

Aitken (1981) points out that these changes originated in and spread outwards from the core dialects of central Scotland, and it is in these dialects that Aitken's Law has had its greatest impact, affecting most vowels in the system. In core central Scots, only ESc /i, u/, which remain short in all environments, and /oi/, which remains long everywhere, are not subject to Aitken's Law.[6] US can be classed with some of the peripheral dialects of Scots on which Aitken's Law has had a more limited impact, partly as a result of the changes in question losing momentum as they spread further and further from their point of origin, and partly because of interference from other historical processes. The nonparticipation of US /e:/ in Aitken's Law is shared with some southern Scots dialects, e.g. Berwickshire (Wettstein 1942: 7). Similarly, phonemically long /o:/ (<u>boat</u>) is found not only in US but also in some northern Scots varieties (Aitken 1981: 152).

Some Scots dialects, including US, appear to have undergone a simplification of (5b), whereby the lengthening of historically short /e, a, o/ has been generalised beyond the Aitken's Law 'long' environments:

(5b') The nonhigh short vowels /e, a, o/ lengthen everywhere.

Aitken reports the lengthening of /ɛ/ < ESc /e/ in 'short' environments, particularly before voiced stops, /n/ or /s/, for some east coast Scots dialects (1981: 152), and similar lengthenings of the reflexes of ESc /a/ and /o/ are reported for southern Scots by Zai (1942: 16-17) and Wettstein (1942: 7). I have observed in some west coast Scots dialects the lengthening of historical /e, a, o/ in all stressed environments, not just the Aitken's Law 'long' ones. This observation is confirmed for Ayrshire by Wilson (1923), who reports long vowels in words such as <u>can</u>, <u>cat</u>, <u>back</u>, <u>lass</u>, <u>stamp</u> (24); <u>bed</u>, <u>left</u>, <u>neck</u>, <u>bell</u>, <u>stem</u>, <u>sent</u> (26); <u>long</u>, <u>shop</u>, <u>loss</u>, <u>bog</u> (29), all of which would contain short vowels if Aitken's Law applied regularly. US can be grouped with those dialects of Scotland in which the unconditional lengthening (5b') has applied generally.

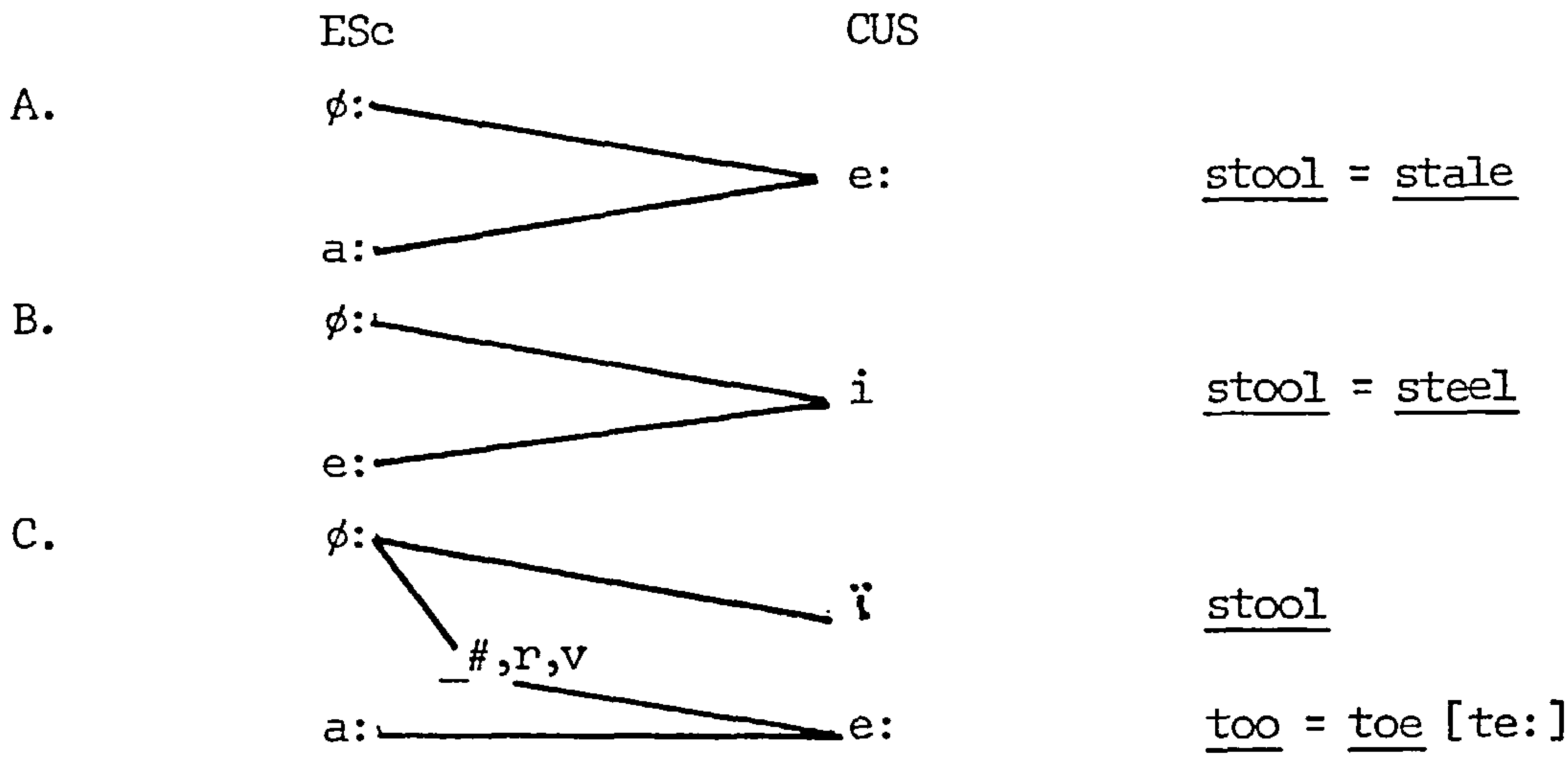
The fact that Aitken's Law applies in US, at least to /i, ʉ, əi, ɑe/, lends support to Aitken's claim that the rule has its origins in the fifteenth century (1981: 137). The rule could hardly have become sufficiently well-established for it to cross the Irish Sea, if, as Lass suggests, it had been added to the grammar of Scots as late as the seventeenth century (1976: 54), since the main Scottish emigration to Ulster was already underway by that time. The bulk of the Scottish settlers in Ulster came from the peripheral dialect area of southwest Scotland. The Aitken's Law changes must presumably have begun their diffusion outwards from the core dialects of central Scotland well before the seventeenth century if they were to be sufficiently advanced in southwest Scots before the Plantation of Ulster. Whatever the exact dates involved, it is clear that the shortening of historically long vowels (5a) post-dates the early stages of the Great Vowel Shift, since these vowels all appear in their shifted shapes.

1.2.3 The CUS vowels in detail

/i/. CUS /i/, which is usually fully close, has as its main source ESc /e:/, e.g. /strit/ street, /sik/ sick. It is also the reflex of ESc word-final /ei/, e.g. /di/ die, /i/ eye, and sporadically of ESc /ɛ:/, e.g. /klin/ clean, /hid/ head.

/ï/. /ï/ is the unrounded reflex of ESc /ø:/ (from earlier /o:/ through fronting) in closed syllables, e.g. /bït/ boot, /blïd/ blood. Strictly speaking the vowel does not remain as a distinct phoneme in all CUS dialects. ESc /ø:/ has three main developments (schematised in (6)) which Gregg takes as defining three main subdivisions of CUS (1963: 31; 1972: 119). In north Antrim and northeast Derry, the vowel has merged with ESc /a:/ as half-close front unrounded /e:/ (6A). In Co. Donegal and mid Down, the reflex of ESc /ø:/ is close front unrounded /i/ which is merged with ESc /e:/ (6B). The CUS dialects of mid Antrim and north Down are similar to many present-day dialects of southwest Scotland (and elsewhere), in that ESc /ø:/ has two main developments. Word-finally, before /r/ and sporadically before /v/, it is merged with ESc /a:/; elsewhere it remains distinct as lowered front-central unrounded /ï/ (6C).

(6)



/ʉ/. This vowel is realised as a close central slightly rounded [ʉ:] in all Aitken's Law 'long' environments except before /r/, e.g. [kʉ:] cow. In the latter position and in Aitken's Law short environments, it tends to be lowered to half-close central [ö(:)], e.g. [ʃö:ɾ] sure [hös] house. It is the undiphthongised fronted reflex of ESc /u:/, e.g. [nʉ:] now, [mös] mouse, and is also to be found in words that had ESc /eu/, e.g. [blʉ:] blue. It is also a development of ESc /ul/ through vocalisation of the lateral, e.g. [pʉ:] pull. Some lexical items containing /ʉ/ appear to be borrowings from non-CUS dialects, e.g. [bök] book, [föd] food, where /ï/ < ESc /ø:/ would be expected.

/e:/. The slightly lower than half-close front vowel /e:/ has several sources: ESc /a:/ < OE /ɑ:/ (e.g. /ste:n/ 'stone'/); ESc /a:/ < OE /a/ lengthened (e.g. /se:m/ same); ESc /ai/ in closed syllables (e.g. /re:n/ rain); ESc /ɛ:/ (where the modern reflex is not /i/, e.g. /be:t/ beat); and, in some dialects, ESc /ø:/ (e.g. /de:/ 'do'; see under /ï/). A short raised and retracted variant occurs in contractions under low stress where the full form contains [e:], e.g. [de:] ('do') + [ne:] ('not') —> [dɪne] ('don't'), [he:] ('have') + [ne:] ('not') —> [hɪne] ('haven't').

/o:/. The usual US reflex of ESc /ɔ:/ is /o:/ which is most frequently realised as overrounded [ọ:], e.g. /fo:l/ foal, although it is also found in a few borrowings where /e:/ < ESc /a:/ would be expected, e.g. /o:k/ oak. In some dialects of CUS, there appears to be a marginal contrast between long [o:] and short [o] before /k/. This contrast is reported in mid Antrim for both CUS and SUS by Gregg (1958: 404; 1964: 170), who cites as minimal pairs:

(7)

[po:k]	poke (vb)	[pok]	poke (n) ('small paper bag')
[spo:k]	spoke (vb)	[spok]	spoke (n)

It is possible that this marginal contrast is the result of rule (5a), the Aitken's Law shortening of originally long vowels, failing to go to completion in the case of US /o:/. Historically, Aitken's Law in US seems to have favoured high vowels, i.e. /i, ʉ/ and originally high /əi, ɑe/ (< ESc /i:/). Raised from half-close /o:/, being the highest back vowel in the system (ESc /u:/ having been fronted to /ʉ/), may have initially been susceptible to Aitken's Law shortening (as it has been to a certain extent in MUE dialects - see 1.4.1). The abortive shortening of ESc /ɔ:/ appears to have been conditioned by various factors in the linguistic environment. Besides the phonetic conditioning (following /k/ favours shortening), grammatical and lexical conditioning is also in evidence. Verbs have been resistant to the shortening more than have nouns: Gregg mentions provoke, revoke, soak, woke as containing long vowels and folk, spoke (n), poke (n) as containing short vowels (1964: 170).

/ɛ:/. /ɛ:/ is the half-open isolative reflex of ESc /e/, e.g. /bɛ:d/ bed. It is also a conditioned reflex of ESc /a/ front-raised in certain environments, particularly before alveolars (e.g. /brɛ:s/ brass, /glɛ:d/ glad), and in certain velar environments, namely after /k/ (e.g. /kɛ:b/ cab) or before /k, g, ŋ/ (e.g. /ɛ:ks/ axe, /bɛ:g/ bag, /bɛ:ŋ/ bang). The result of this raising of ESc /a/ is the contextual neutralisation of the present-day US /ɛ:/ : /ɑ:/ contrast.

/ɑ:/. /ɑ:/ is fully back in most CUS dialects, although central or front diaphones occur in Donegal as well as in SUS. It is the main development of ESc /a/ (e.g. /hɑ:n/ hand) but is also a combinative reflex of ESc /o/ lowered and unrounded before labials, resulting in a neutralisation of the CUS /ɔ:/ : /ɑ:/ opposition in this environment, e.g. /tɑ:p/ top, tap, /ɑ:f/ off. CUS /ɑ:/ is also a conditioned development of ESc /e/ lowered after historical /w/, e.g. /rɑ:n/ wren, /twɑ:lθ/ twelfth. /ɑ:/ < ESc /a/ is retained after labial-velar approximants, an environment where the equivalent vowel in standard varieties has been rounded and sometimes back-raised, e.g. CUS /hwɑ:t/ what, /wɑ:nt/ want.

/ɔ:/. /ɔ:/ is realised as half-open round and sometimes fully back but often centralised. Under this vowel are merged the reflexes of ESc /o/ and /au/, e.g. /tɔ:t/ tot, taut, /pɔ:t/ pot, /snɔ:/ snow. It is also a development of ESc [auɫ] < /al/ through vocalisation of the lateral and rounding of the vowel (e.g. /bɔ:/ ball) and also of ESc /ou/ before a velar fricative (e.g. /bɔ:xt/ bought).

/æ̈/. /æ̈/ is the main reflex of ESc /i/ lowered to a lower-than-half-open retracted-from-front position, e.g. /θæ̈k/ thick. It is also a conditioned reflex of ESc /e/, especially before /v/, nasals and sporadically before alveolar obstruents, e.g. /ˈæ̈vər/ ever, /bæ̈nʃ/ bench, /ˈjæ̈stərde/ yesterday.

/ʌ/. This half-open unrounded slightly advanced from back vowel appears as the regular development of ESc /u/ (e.g. /dʌm/ dumb) and often as the combinative reflex of ESc /i/ before /r/ (e.g. /θʌrd/ third). The lowering and backing influence of labial-velars on following historically short front vowels in CUS, already noted in the change ESc /e/ > CUS /ɑ:/, is further evidenced by the fact that the combinative reflex of ESc /i/ in this environment is CUS /ʌ/, e.g. /twʌst/ twist, /hwʌspər/ whisper.

/əʉ/. Under the CUS rising diphthong /əʉ/ are merged ESc /ou/ (e.g. /grəʉ/ grow, /jəʉ/ ewe) and ESc /a/ and /o/ before /l/ (e.g. /əʉl/ old, /kəʉlt/ colt).

/ɔe/. The falling diphthong /ɔe/ is the regular reflex of ESc /oi/, e.g. /nɔez/ noise. In mid Antrim it is also the development of ESc

/ui/ (e.g. /dʒɔen/ join), but elsewhere in CUS this vowel has tended to merge with ESc /i:/ under CUS /əi/ (e.g. /dʒəin/ join).

/əi/ and /ɑe/. Phonetically, the US diphthong /ɑe/ is of the falling type: length falls on the first, syllabic element, i.e. [ɑ·ĕ]. The overall quantity of /əi/ is much shorter; it is of the rising type with prominence on the second element, i.e. [ə̆i]. Generally speaking, the two diphthongs are combinative reflexes of ESc /i:/ : [ɑ·ĕ] before /r, v, ð, z/, a vowel or a boundary; [ə̆i] elsewhere (e.g. [fɑ·ĕv] five, [mɑ·ĕ] my vs [lə̆in] line, [gə̆id] guide). The distribution of the diphthongs thus seems to follow the Aitken's Law conditions outlined in (3); [ɑ·ĕ] in 'long' environments, [ə̆i] in 'short':

(8)

[ə̆i] in 'short' contexts

_ voiceless stop	ripe
_ voiced stop	guide
_ voiceless fricative	mice
_ nasal	line
_ lateral	wild

[ɑ·ĕ] in 'long' contexts

_ voiced fricative	five
_ /r/	tire
_ vowel	trial
_ #	tie
_ +consonant	tied

If this pattern of complementary distribution were rigid, [ɑ·ĕ] and [ə̆i] would simply be allophones of the same phoneme. However, the pattern is disrupted by two factors which force us to recognise two separate phonemes in present-day CUS. Firstly, [ə̆i] can occur word-finally (an Aitken's Law 'long' environment) as a combinative reflex of ESc /ai/ (e.g. [hə̆i] hay, [stə̆i] stay), so that the two diphthongs contrast in this position (e.g. [stə̆i] stay vs [stɑ·ĕ] sty).

The second complicating factor has to do with lexical selectivity in the diachronic development of a fully open first element in the reflex of ESc /i:/ in Aitken's Law 'long' environments. This lowering was apparently arrested before going to completion, with the result that there has been a lexical split within the ESc /i:/ class. While no [ɑ·ĕ] reflexes appear in the 'short' contexts, there is a residue of items which retain a mid first element in 'long' environments, e.g. hire, lives, rise. In the latter contexts there is thus a marginal contrast between [ə̆i] and [ɑ·ĕ], a relic of the aborted historical lowering process. (Lass 1981 discusses the implications of parallel cases of 'undigested history' in the same etymological category in British and North American dialects.)

Comparative evidence indicates that CUS is not the only Scots dialect in which the development of a fully open first mora in reflexes of ESc /i:/ was never completed in Aitken's Law 'long' environments. The length rule was added to the grammars of Scots dialects after the first element in diphthongised ESc /i:/ had reached mid position (Aitken 1981: 155). Subsequently a quality change affected the long reflexes of ESc /i:/, producing a further lowering of the first mora and in some dialects also the second mora of the diphthong. As with Aitken's Law, this change appears to have originated in the dialects of central Scotland where its impact has been greatest. The spread of the quality change has not been uniform: in many dialects its progress through the lexicon has been impeded by analogical and phonetic conditioning factors. Below are listed five Scots dialect-types ranked according to the extent to which the first mora of diphthongised ESc /i:/ has been lowered to a fully open position (L = fully low, M = mid):

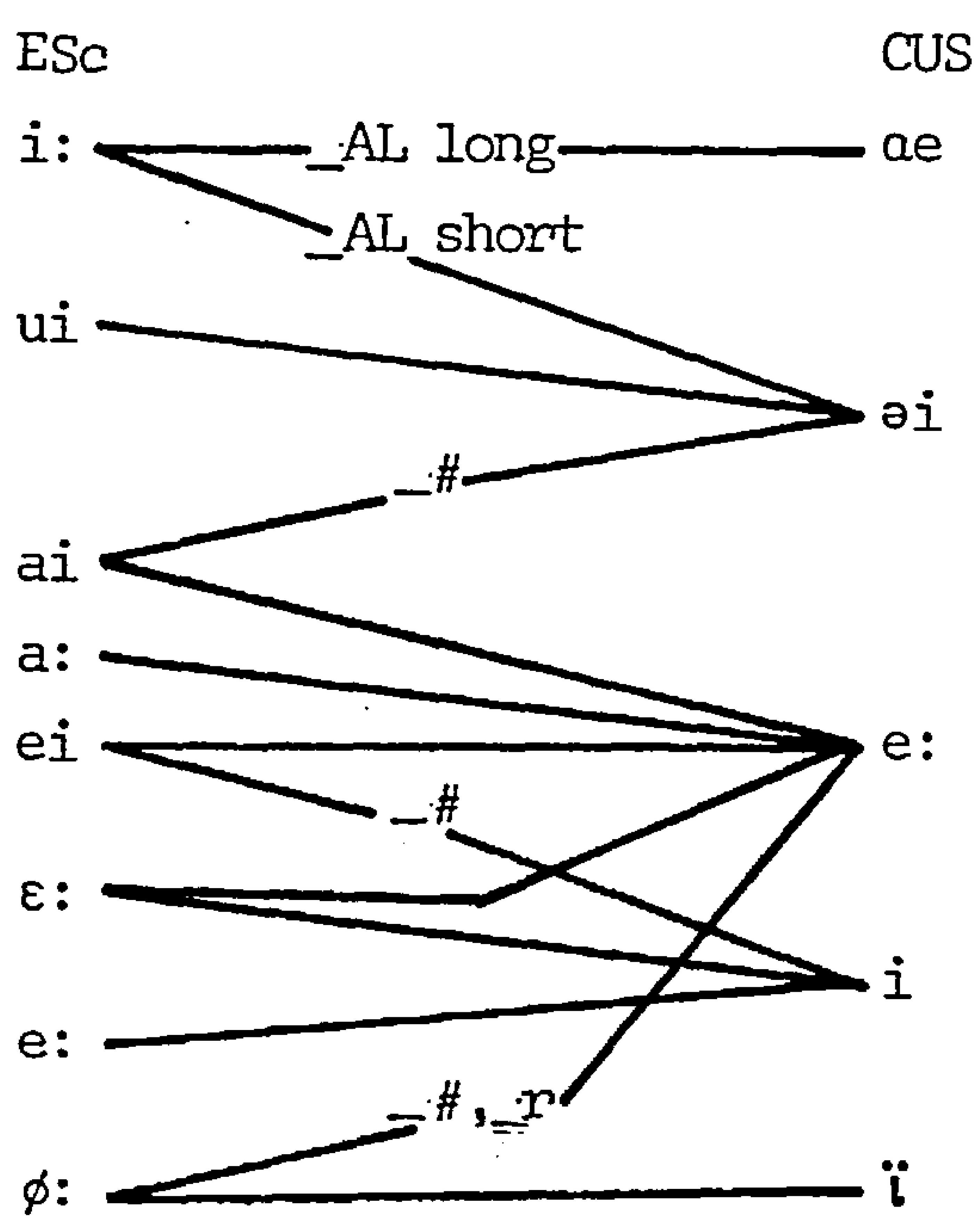
(9)

	Aitken's Law contexts			
	Long			Short
	_#	_/v,ð,z/	_/r/	
A. Central Scots	L	L	L	M
B. ne, sw Scots	L	L	M	M
C. CUS	L	L/M	L/M	M
D. Earlston, Kirriemuir	L	L/M	M	M
E. s Scots	L	M	M	M

The dialects of central Scotland show the most regular development of lowering in all the Aitken's Law 'long' environments (9A). The situation in the northeast and southwest of Scotland (reported in Aitken 1981: 143) is similar, except that lowering has not spread to the environment of following /r/ (9B). In the dialects of Earlston and Kirriemuir (also reported in Aitken 1981: 144) lowering is only sporadic before voiced fricatives and has not reached following /r/ contexts (9D). Lowering has only affected word- and morpheme-final positions in conservative varieties of southern Scots according to Murray (1873: 115), Wettstein (1942: 42) and Zai (1942: 81 ff) (9E).[7] CUS fits in between dialect-types (9B) and (9D). Although the pattern of lowered reflexes of ESc /i:/ in CUS is in some ways similar to that of central Scots, CUS nevertheless shares with some of the other geographically peripheral dialects of Scots numerous relic forms with unlowered diphthongs in Aitken's Law 'long' environments. With following /r/ we find, for example, /ˈəirlənd/ Ireland, /wəir/ wire, /həir/ hire alongside regular forms with /ɑe/. With following voiced fricatives, we find a number of relic forms with /əi/, possibly due to analogical influence, where otherwise we regularly get /ɑe/. The forms /nəivz/ knives and /ləivz/ lives, Gregg suggests (1964: 174), retain /əi/ because of analogical pressure from the singular forms /nəif/ knife, /ləif/ life (which of course regularly contain /əi/ in the Aitken's Law 'short' context of voiceless fricatives). Whatever the historical details might be, the result in present-day CUS has been a phonemic split of ESc /i:/ into /əi/ and /ɑe/.

The main developments of ESc vowels into their present-day CUS reflexes can be summarised as follows:

(10)

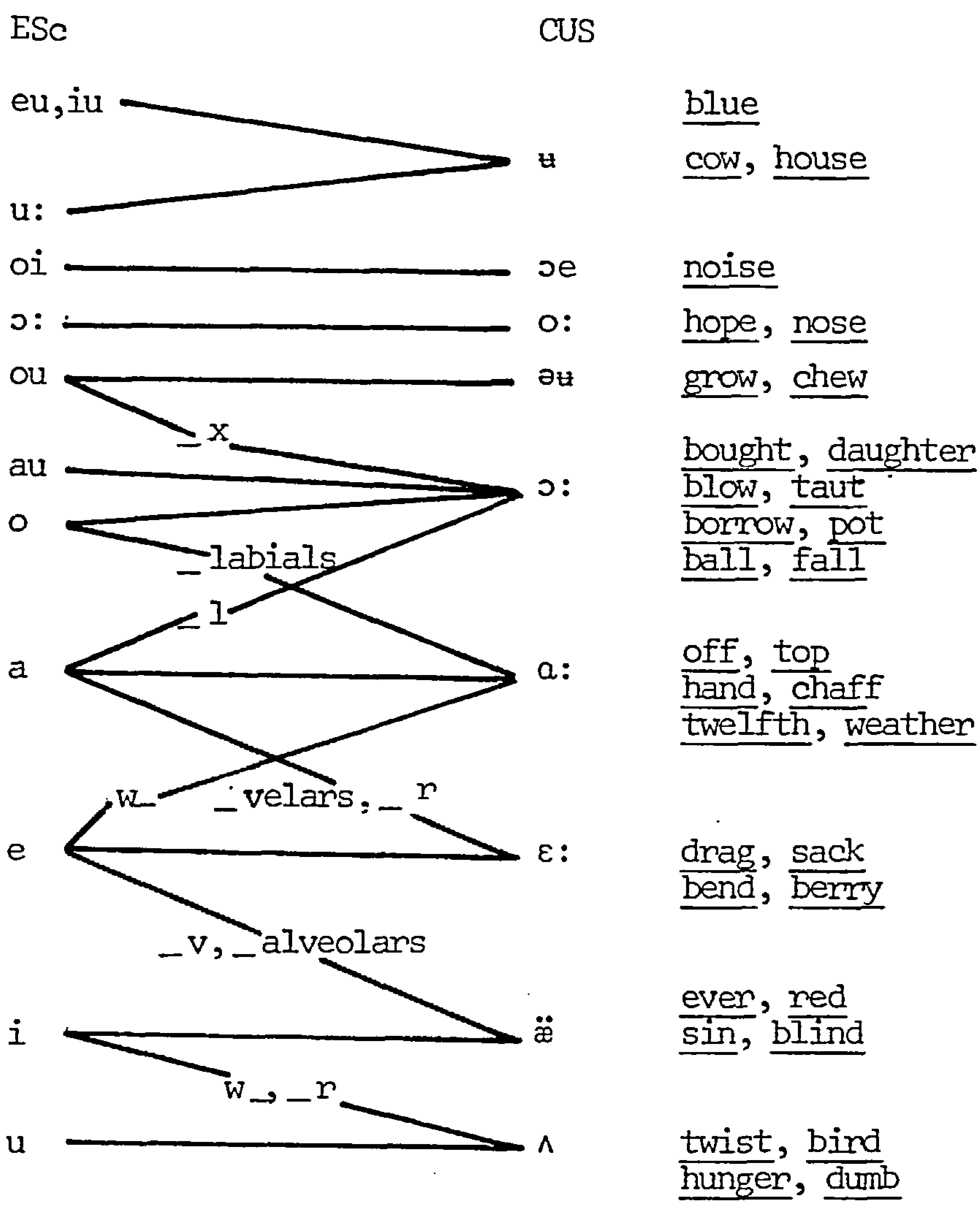


five, tied

mice, line, tide
join
hay, stay

same, home, toe
faith, gain
beat, cheap
do, too, poor
die, eye
dead, clean
street, three

foot, good



1.2.4 Standardised Ulster Scots. As has already been pointed out (1.2.2), Conservative and Standardised Ulster Scots share essentially the same vowel system and a similar set of allophonic rules governing quantity and quality. The main difference between the two varieties lies in the divergent distribution of the vocalic phonemes throughout the lexicon. The typically Scots lexical distribution of CUS is abandoned in SUS in which lexemes have been transferred into standard vocalic classes. For example, most CUS /ʉ/ items are transferred into the SUS /əʉ/ class (e.g. cow, drown, house). Other major lexical class reallocations include: CUS items containing /i/ < ESc /ei/ into the SUS /əi/ class (e.g. eye, die); CUS /e:/ < OE /ɑ:/ into the SUS /o:/ class (e.g. home, toe); and all CUS word-final /əi/ words into the SUS /e:/ class (e.g. stay, pay). SUS generally lacks the /ä/ phoneme, transferring most items from this CUS class into the /ï/ class (e.g. *bit*, *thick*), although /æ̈/ is retained in some urban SUS vernaculars. CUS /ï/ items are in turn relexified as either /ʉ/ or /ʌ/ items in SUS (e.g. CUS /fït/ —> SUS /fʉt/ *foot*, CUS /blïd/ —> SUS /blʌd/ *blood*). CUS words containing /e:/ from ESc /ø:/ before /r/ are transferred into either the SUS /o:/ class (e.g. /de:r/ —> /do:r/ *door*) or the /ʉ/ class (e.g. /pe:r/ —> /pʉr/ *poor*).

The transfer of CUS words into standard vocalic classes has taken place in such a way as to leave the opposition between /əi/ and /ɑe/ intact, despite the fact that the contrast is marginal in CUS. The diphthongs still contrast morpheme-finally in SUS:

(11)

ESc		CUS		SUS	
ei#	————————	i	------------------	əi	*die*
i:#	————————	ɑe	------------------	ɑe	*my*
ai#	————————	əi	------------------	e:	*stay*

Die items have been transferred not into the *my* class (as in Scottish English), but into the /əi/ class left vacant by the reallocation of CUS *stay* items into the /e:/ class. The result is that SUS has such minimal pairs as /ɑe/ *I*, vs /əi/ *eye*, /dɑe/ *dye* vs /dəi/ *die*, and /lɑe/ *lie* ('recline') vs /ləi/ *lie* ('tell an untruth'), as well as those listed in (12) which are the result of one member of each pair containing an internal morpheme boundary, an Aitken's Law 'long' environment. The similarities to Scottish English are clear.[8]

(12) Aitken's Law environments

Long				Short	
_#		_+C		_d,n	
[tɑ·ẽ]	*tie*	[tɑ·ẽd]	*tied*	[tə̆id]	*tide*
[mɑ·ẽ]	*my*	[mɑ·ẽn]	*mine* (poss.)	[mə̆in]	*mine* (n)
[ni:]	*knee*	[ni:d]	*kneed*	[nĭd]	*need*
[bɹʉ:]	*brew*	[bɹʉ:d]	*brewed*	[bɹʉd]	*brood*

Although the reorganisation of the lexical incidence of phonemes in SUS is along roughly standard lines, several nonstandard CUS vocalic neutralisations are retained, apparently because of problems surrounding the reversal of phonological mergers.[9] The complete merger of ESc /o/ and /au/ is not reversed, so that, for example, both *cot* and *caught* are pronounced /kɔ:t/ in SUS. Similarly, the CUS conditioned merger of ESc /a/ and /e/ after /k/ or before /k, g, ŋ/ is retained in SUS (e.g. peck and pack are both /pɛ:k/; /kɛ:təl/ can be either kettle or cattle).

The main correspondences between the CUS and SUS vocalic phoneme classes can be illustrated as follows:

(13)

SUS		CUS
i	street	i
	beat	e:
ʉ	soot	ɪ̈
	book	ʉ
ɪ̈	thick	æ̈
	twist	ʌ
e:	same	e:
	pay	əi
o:	foal	o:
	home	e:
	snow	ɔ:
	cold	əʉ
əʉ	cow	ʉ

SUS		CUS
ɛ:	bed	ɛ:
	head	i
	twelfth	ɑ:
	never	æ̈
ɑ:	hand	ɑ:
	grass	ɛ:
ɔ:	pot	ɔ:
	top	ɑ:
ʌ	dumb	ʌ
	blood	ɪ̈
ɑe	my	ɑe
əi	line	əi
	die	i:
ɔe	noise	ɔe
	join	əi

1.3.0 South Ulster English vocalic phonology

1.3.1 The SUE vowel system. There is precious little published material relating to SUE. What little there is is to be found mostly in wider surveys of HE in general and does not offer much in the way of detailed phonological description. Brief glimpses of SUE phonology appear in Henry's Linguistic survey of Ireland (1958) and in Adams 1948 and 1973. Adams & Tipping (1966) and O'Prey (1976) concentrate exclusively on one SUE vowel (/ɛ/) in tracing an isogloss between MUE and SUE in south and central Armagh. Because of the paucity of published descriptions of SUE, most of my analysis of SUE phonology is based on observations I made from the records of the Tape-Recorded Survey of Hiberno-English.

It soon becomes clear, even from casual observation, that many of the linguistic characteristics that distinguish SUE from MUE are the very ones SUE shares with southern HE. There is a good deal more published material on southern HE than on SUE. Particularly helpful here is Henry's account of the dialect of north Roscommon (1957), the most northerly variety of southern HE on which we have published details. Other available studies of southern HE dialects which are detailed enough for our purposes include Bertz (1975) for Dublin, Lunny (1981a) for west Cork and Nally (1971) for Westmeath.

SUE, as has already been pointed out, is a transitional dialect between northern and southern HE, combining a typically southern vowel quantity pattern with some characteristically northern quality features. SUE vowel phonology is markedly different from that of US, since it preserves for the most part a reflex of the West Germanic pattern of phonemic length. Two sets of stressed vowels can be recognised, one containing inherently short phonemes (14a), the other inherently long phonemes (including diphthongs) (14b).

(14)

(a)	ɩ	(ɷ)	(b)	i:	ʉ:		əi
	ɛ	ɔ̈		e:		o:	əʉ
	a	ɑ		a:		ɑ:	ɑɩ

(The marginal status of /ɷ/ is discussed at length in 1.3.2.) Sample lexical items containing these vowels are:

(15)

ɩ	bit	i:	feet	əi	my
ɛ	bet	e:	fate	əi	how
a	bat, Sam	a:	psalm, glass	ɑi	boy
ɑ	pot	ɑ:	caught, loss		
ɔ̈	put, but	o:	boat		
		ʉ:	boot		

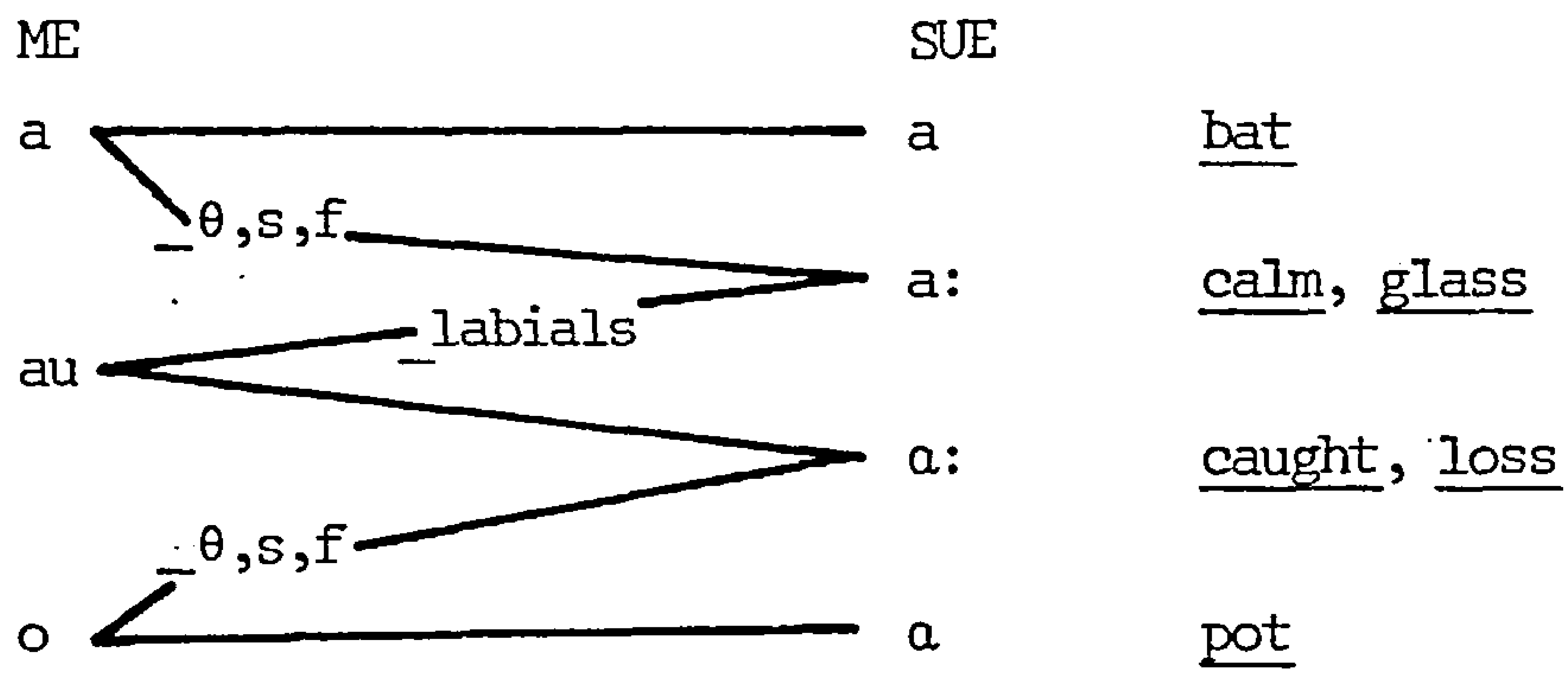
It will be noted that SUE lacks anything equivalent to the /ɑe/ : /əi/ contrast of US (SUE /ɑɩ/ corresponds to US /ɔe/). On the other hand, there are two SUE vocalic oppositions that are not found in US. SUE contrasts long /a:/ (psalm) with short /a/ (Sam), where US has only /ɑ:/ (/sɑ:m/ psalm, Sam). Similarly, SUE long /ɑ:/ (taut) and short /ɑ/ (tot) correspond to only one US vowel (/tɔ:t/ taught, tot).

1.3.2 Lexical distribution of SUE vowels. The lexical distribution of the SUE vowel phonemes is not identical to that of RP but obviously resembles it more closely than does that of CUS or even SUS. Only some of the main points of divergence from RP distribution need be noted here.

The SUE /e:/ class includes a large number of items that contained ME /ɛ:/ but now have /i:/ in RP, e.g. leave, beat, decent, meat, cheap. The number of ME /ɛ:/ words retaining a mid vowel is much larger in SUE than in CUS. SUE /əʉ/ is the reflex not only of ME /u:/ (e.g. cow, house) but also, as in CUS, of ME /a/ or /o/ followed by /ld/ (with subsequent loss of the /d/), e.g. /əʉl/ old, /kəʉl/ cold.

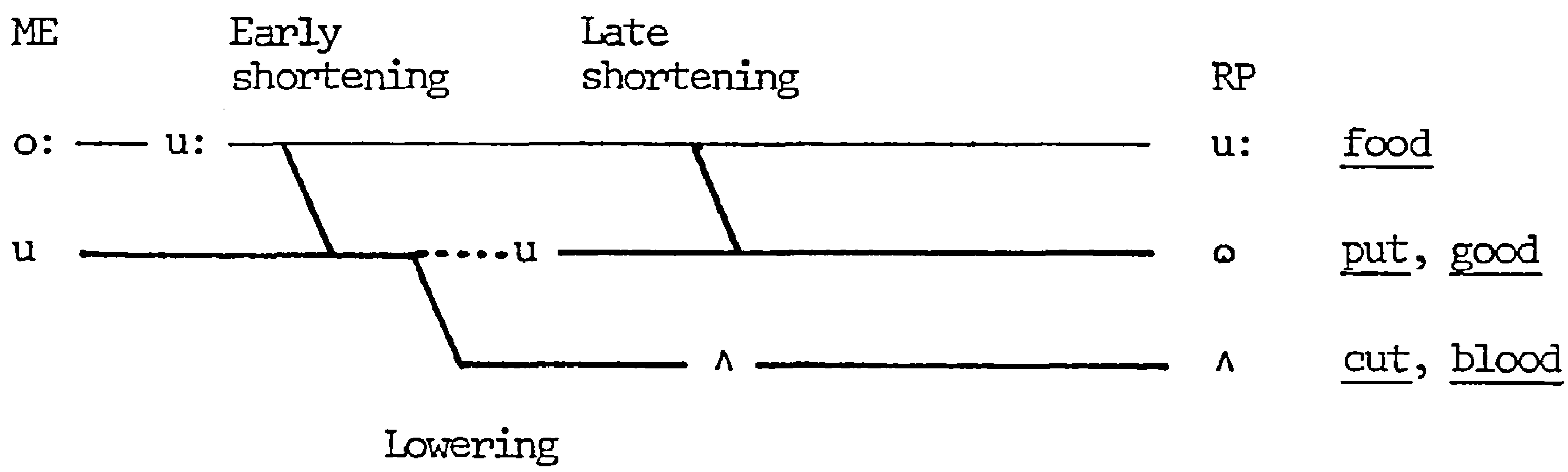
SUE shares with southern English dialects the Early Modern lengthening of ME /a/ before /f, θ, s/ (but not before /ns/ or /nt/ - compare RP /grɑ:nt/ with SUE /grant/ grant) as well as the lengthening of ME /o/ in the same environments, now abandoned in all but the most conservative types of RP (e.g. SUE /sɑ:ft/ vs RP /sɒft/ soft). The present-day distribution of the four SUE phonemes /a, a:, ɑ, ɑ:/, which correspond to RP /æ, ɑ:, ɒ, ɔ:/ respectively, can best be seen in terms of their development from ME /a, au, o/:[10]

(16)



The situation with regard to /ʊ, ɔ̈, ʉ:/ in SUE is quite complex and unstable. In many SUE dialects the three-way contrast is reduced to two, viz. /ʉ:/ : /ʊ~ɔ̈/. But even in the case of the three-way distinction, the lexical distribution of the phonemes is quite different from that of the corresponding RP vowels /ʊ, ʌ, u:/. It is necessary to go into the historical background of the vowels in question in some detail, in order to do justice to the complexity of the situation in present-day SUE. The RP three-way contrast, which has developed as a result of a series of phonemic splits in ME /u/ and /o:/, is now quite stable:

(17)



(See Dobson 1968 (585ff) and Kökeritz 1953 (235ff) for details.) Some phonetic conditioning was involved in the developments that led to the distribution of /ʊ, ʌ, u:/ in RP. Preceding labials disfavoured the lowering of short /u/ (from ME /u/ and from ME /o:/ through early shortening), especially if /l/ or /ʃ/ followed the vowel. (According to other accounts, preceding labials reversed rather than prevented the lowering. There is some dispute over the details: Ekwall (1975: 52) and Dobson (1968: 720ff) assume retention, while Wyld (1920: 232ff) argues for reversal.) Thus bull, pull, woman, wool, push have unlowered /ʊ/ in RP, while cut, dust, lung, blood, flood have lowered /ʌ/. Following /k/ favoured late shortening of ME /o:/ so that look, took, cook, hook have short /ʊ/ in RP as against food, spoon, stool with long /u:/. However, this phonetic conditioning was by no means categorical and all three diachronic processes in (17) were subject to a certain amount of lexical conditioning. The result was that there was a good deal of fluctuation in the lexical distribution of the vowels in question during the sixteenth, seventeenth and eighteenth centuries (Dobson 1968: 585ff; Kökeritz 1953: 235ff). This was the very period when HE was in its formative stages, so it comes as no surprise to find this pattern of variation repeated in present-day HE dialects.

Both SUS and MUE have only a two-way contrast equivalent to RP /ʊ/ : /ʌ/ : /u:/. In southern HE we find both two- and three-way contrasts in this vocalic subsystem. It must be pointed out, however, that the lexical incidence of the phonemes in the southern HE two-vowel subsystem is quite different from that of SUS and MUE. Even within southern HE itself the lexical distribution of the vowels in question varies from dialect to dialect. The southern HE two-vowel subsystem is very similar in distributional terms to the present-day dialects of the north and midlands of England, where a failure to lower short /u/ (from ME /u/ and /o:/ through early shortening) has meant that there is a two-way contrast /ʊ/ : /u:/ corresponding to RP /ʊ/ : /ʌ/ : /u:/ (see Wells 1982: 351ff). In these dialects, /ʊ/ corresponds to RP /ʊ/ and /ʌ/ (so that <u>put</u> and <u>putt</u> are homophones). In some of the same dialects, the failure of late shortening before /k/ means that the /u:/ class contains items that have /ʊ/ in RP, e.g. northern /hu:k/ vs RP /hʊk/ <u>hook</u>.

Lowering of short /u/ has applied sporadically in southern HE dialects with the three-vowel subsystem, but the process has not progressed to the point it has reached in RP /ʌ/. Neither has it been accompanied by unrounding as in RP. The usual reflex of lowered short /u/ in southern HE is mid round centralised [ɔ̈].

The southern HE dialects of north Roscommon and Westmeath have a /ʊ/ : /ɔ̈/: /u:/ three-vowel subsystem (Henry 1957: 27ff; Nally 1971). Dublin vernacular and west Cork English are of the two-vowel /ʊ/ : /u:/ type (Bertz 1975: 99; Lunny 1981a: 41). The relationship between HE and British English dialects with respect to the development of ME /u/ and /o:/ can be summarised as follows:

(18)

s.England, RP	Roscommon, Westmeath	n.England, Dublin, w.Cork	Scottish Eng., SUS	MUE
u:	u:			
		u:	ʉ	ʉ
ʊ	ʊ			
		ʊ	ʌ	ɔ̈
ʌ	ɔ̈			

The arrangement of vowels in (18) is in no way meant to imply a strict equivalence of lexical incidence across the dialects illustrated. Even within each dialect-group there is a good deal of variation in this respect.

Nowhere is this variation more pronounced than in SUE dialects where we find fluctuation between two- and three-vowel subsystems. Some measure of the fluctuation can be gauged from Tab 1-1 which shows reflexes of ME /u/ and /o:/ in questionnaire items elicited from speakers in SUE areas by fieldworkers of the Tape-Recorded Survey of Hiberno-English.[11] From the table it can be seen that the two- versus three-vowel contrast dialect division cuts across the MUE-SUE vowel quantity division. Of the dialects listed in Tab 1-1, the more MUE-like can be recognised by the Aitken's Law conditioning of vowel length in the last five items (short [ʉ] before /l, s, k/, long [ʉ:] before /z, ð/ - see the dialects at points 60, 65 and 66).[12] Core SUE dialects (with phonemic length) have long [ʉ:] in all of the last five words in (19). The distribution of /ɷ/ and /ɔ̈/ across the words in Tab 1-1a is not constant for all the dialects with the three-way contrast. Some phonetic conditioning is evident: as with the historical developments leading to the RP /ɷ/ : /ʌ/ split, preceding labials tend to disfavour lowered /ɔ̈/ (see especially <u>bush</u> and to a lesser extent <u>bus</u>, <u>buzz</u>, <u>full</u>). The pattern of phonetic conditioning is, however, by no means rigid and some lexical conditioning is clearly also involved. This is particularly clear in the case of <u>good</u>, for which nearly all the dialects in Tab 1-1 have short [ʉ]. This appears to be a lexical borrowing from MUE (where [ʉ] is the short allophone of /ʉ/), which results in a marginal contrast between a short /ʉ/ and long /ʉ:/ in the dialects with phonemic length. Given the general dialectological principle that mergers tend to spread at the expense of distinctions (Garde 1961; Herzog 1965) and given that the influential and linguistically innovative vernaculars of Dublin and Belfast lack the /ɷ/ : /ɔ̈/ contrast, it might be expected that the tension in SUE between the two- and three-vowel subsystems will eventually be resolved in favour of the two-term contrast. In MUE, as we shall see (1.4.2), this tension still survives as an instability in the lexical distribution of the vowels in the two-phoneme subsystem.

One further difference between RP and SUE with regard to the lexical incidence of ME /o:/ reflexes needs to be noted. When not shortened, ME /o:/ has been regularly raised in all environments in SUE, including before historical /r/ where it has in many cases reverted to or remained as a mid vowel in RP. SUE thus has /ʉ:/ in <u>door</u>, <u>floor</u>, <u>board</u>, <u>whore</u> as well as in a few items that contain undiphthongised reflexes of ME /u:/ before /r/, e.g. <u>coarse</u>, <u>course</u>.

1.3.3 <u>SUE vowel quality</u>. The main characteristic of SUE vocalic phonology that sets it apart from southern HE is the typically northern quality of some vowels, particularly /ʉ:, əʉ, ɩ, o:/. This is one of the features that Barry (1981a) takes as defining the boundary between

Tab 1-1. Reflexes of ME /u/ (full, cut) and /o:/ (fool, blood) in 13 SUE localities. From the Tape-Recorded Survey of HE (grid references in brackets).

(a) 3-way /ʉː/ : /ɷ/ : /ɔ̈/ contrast

	Manorhamilton Leitrim (58)	Kilawley Fermanagh (60)	Lisnaskea Fermanagh (61)	Madden Armagh (63)	Castleblaney Monaghan (70)	Kilnahun Meath (78)	Castlebellingham Louth (79)
BUS	ɔ̈	ɷ	ɔ̈	ɷ	ɷ	ɔ̈	ɔ̈
CUT[13]	ɔ̈	ɷ	ɔ̈	ɔ̈	ʌ	ɔ̈	ɔ̈
BUZZ	ɔ̈	ɷ	ɔ̈	ɷ	ɔ̈	ɔ̈	ɷ
FULL	ɔ̈	ɷ	ɷ	ɷ	ɔ̈	ɔ̈	ɔ̈
DRUM	ɔ̈	ɷ	ɔ̈	ɷ	ɔ̈	ɔ̈	ɔ̈
BUSH	ɷ	ɷ	ɷ	ɔ̈	nr	ɷ	ɷ
SON	ɔ̈	ɔ̈	ɔ̈	ɷ	ɔ̈	ɔ̈	ɔ̈
BLOOD	ɔ̈	ɔ̈	ɔ̈	ɷ	ɷ	ɔ̈	ɔ̈
GOOD	ɷ	ʉ	ʉ	ʉ	ʉ	ɷ	ʉ
FOOL	ʉː	ʉː	ʉ	ʉː	ʉː	ʉː	ʉː
GOOSE	ʉː	ʉː	ʉ	ʉː	ʉː	ʉː	ʉ
HOOK	ʉː	ʉː	ʉ	ʉ	ʉ	ʉː	ʉ
CHOOSE	ʉː	ʉː	ʉː	ʉː	ʉː	ʉː	ʉː
SMOOTH	ʉː	ʉː	ʉː	ʉː	ʉː	ʉː	ʉː

(b) 2-way /ʉː/ : /ɔ̈/ contrast

	Blacklion Cavan (59)	Tullycroman Monaghan (62)	Newry Down (65)	Ballynoe Down (66)	Rockcurry Monaghan (71)	Carlingford Louth (72)
BUS	ɔ̈	ɔ̈	ɔ̈	ɔ̈	ɔ̈	ɔ̈
CUT	ɔ̈	ɔ̈	ɔ̈	ɔ̈	ɔ̈	ɔ̈
BUZZ	ɔ̈	ɔ̈	ɔ̈	ɔ̈	ɔ̈	ɔ̈
FULL	ɔ̈	ɔ̈	ʉ	ɔ̈	ɔ̈	ɔ̈
DRUM	ɔ̈	ɔ̈	ɔ̈	ɔ̈	ɔ̈	ɔ̈
BUSH	ɔ̈	ɔ̈	ɔ̈	ɔ̈	ɔ̈	ɔ̈
SON	ɔ̈	ɔ̈	ɔ̈	ɔ̈	ɔ̈	ɔ̈
BLOOD	ɔ̈	ɔ̈	ɔ̈	ɔ̈	ɔ̈	ɔ̈
GOOD	ʉ	ʉ	ʉ	ʉ	ɷ	ʉ
FOOL	ʉː	ʉː	ʉ	ʉː	ʉː	ʉː
GOOSE	ʉː	ʉː	ʉ	ʉː	ʉː	ʉː
HOOK	ʉː	ʉː	ʉ	ʉ	ʉː	ʉː
CHOOSE	ʉː	ʉː	ʉː	ʉː	ʉː	ʉː
SMOOTH	ʉː	ʉː	ʉː	ʉː	ʉː	ʉː

northern and southern HE. SUE /ʉ:/ and the second element in /əʉ/ are much more fronted than the typically back realisations of the equivalent southern HE vowels. SUE /ɩ/ is normally pronounced lower than the corresponding southern HE vowel, although never as low as CUS /ä/. High allophones do occur before /ʃ/ and palatalised variants of /k, g, /, e.g. [kik] kick, [fiʃ] fish. SUE /o:/, like US /o:/ (in boat), is usually realised as an overrounded back monophthong slightly higher than cardinal 7, in contrast to the more open southern equivalent.

Other features of SUE vowel quality are quite different from US. In contrast to US back /ɑ:/ (in Sam, psalm), SUE /a/ (Sam) and /a:/ (psalm) are realised as central or front, often raised as high as [ɛ(:)], e.g. [ɹɛn] ran, [kɛ:f] calf. SUE /ɛ, ɑ/ are the main isolative reflexes of ME /e/ and /o/ respectively, lowered from mid position (unlike the equivalent US vowels /ɛ:, ɔ:/ and, in the case of /ɑ/, frequently unrounded, e.g. [bɛt] or [bæt] bet, [pɑt] pot. Since SUE /ɑ/, when unrounded, is often fronted, there is a good deal of 'crowding' among the short vowels in the lower vowel area. Overlapping is common, resulting in occasional confusion over word-class assignment. This is particularly true of /a/ and /ɑ/ following a labial-velar approximant. Since the Early Modern rounding of ME /a/ after /w/ occurs only rarely in basic SUE (as in CUS), it is often difficult to determine whether a low central vowel following a labial-velar is a realisation of /a/ or of fronted /ɑ/, e.g. [wänt] want. In many SUE dialects, the two vowels are clearly neutralised in this and some other environments. A similar situation obtains with regard to the equivalent vowels in southern HE (and, as we shall see, in MUE as well). In Roscommon, for example, Henry reports top and tap as homophones for some speakers (1957: 79).

1.4.0 Mid Ulster English vocalic phonology

1.4.1 Belfast Vernacular vowel system. Belfast Vernacular (BV) is taken here as a basis for the description of MUE partly because it is the most widely spoken of northern HE varieties and partly because it is by far the best documented of the MUE dialects. Detailed accounts of BV phonology have appeared as a result of the recent sociolinguistic studies carried out in Belfast by the Milroys and their co-workers (see especially J. Milroy 1976, 1981; L. Milroy 1980; J. & L. Milroy 1978). Published work on MUE dialects other than BV is rather sparse. Adams (1948) provides a brief summary of general MUE features. Pitts (1982) includes detailed information on a number of phonological variables in the Lagan Valley town of Lurgan. It is not my intention in this description of BV phonology to cover the same ground as the published work just mentioned. Rather I wish to concentrate on those aspects of BV phonology that show the effects of dialect mixture most clearly. In particular, I hope to demonstrate how certain characteristics of the MUE phonological system and MUE allophony can be viewed as the outcome of a compromise between US and SUE features. In addition to the published work of the Milroys, I have drawn on my own research, much of it conducted while I was working on the Milroys' project <u>Sociolinguistic variation and linguistic change in Belfast</u>.

The historical settlement patterns in mid Ulster have led to the development of a 'mixed' dialect which shows evidence of both Scots and English influence. This dialect mixture has been further reinforced by more recent migrations within the north of Ireland. Since the industrial revolution, towns in mid Ulster have received large inputs of speakers from both US and SUE dialect areas. As we shall see in Chapter 3, the different dialects in Belfast's hinterland have contributed to the development of competing linguistic norms within the city. One of the areas where the dialect mixture is most evident is in the vocalic phonology of BV, which can be viewed as an accommodation of the US and SUE systems. US influence is most clearly seen in the fact that MUE vowel phonology is characterised by large-scale loss of phonemic length. At the subphonemic level, the compromise between US and SUE works itself out as a proliferation of vowel allophony. Some MUE phonemes display in complementary distribution one set of realisations that appear to have a US background and another which is recognisably more SUE-like. BV /ɛ/, for example, has a long mid allophone [ɛ:] which is clearly similar to US inherently long /ɛ:/ as well as a short low allophone which is apparently related to low realisations of SUE inherently short /ɛ/.

The maximal system of BV stressed vowels, displayed in (19), can be divided into three subsystems (20) according to quantity characteristics.

(19)

i		ʉ			
				o	əi
e					əʉ
	ε̈		ɔ̈		ɔe
ε				ɔ:	
		a(a:)		ɑ	

(20)

(a) /i, e, ε, a, ɑ, o, ʉ, əi, əʉ/

(b) /ε̈, ɔ̈/

(c) /ɔ:, (a:), ɔe/

The length of the vowels in (20a) is entirely phonetically conditioned; the vowels in (20b) are inherently short; those in (20c) inherently long. The lexical distribution of these phonemes is relatively 'standard', i.e. it resembles those of SUE and SUS rather than that of CUS:

(21)

i	feet	əi	fight
e	fate	əʉ	shout
ε	bet	ε̈	bit
a	bat	ɔ̈	but
ɑ	pot	ɔ:	bought
o	boat	a:	father
ʉ	boot	ɔe	boy

Within subsystem (20a) we can recognise three groups of vowels, each with its own set of length conditions:

(22) (a) /i, ʉ/ are long before /r, v, ð, z/, a morpheme boundary, or another vowel, and long elsewhere (Aitken's Law);

(b) /e, o, əʉ, əi/ are short before a voiceless consonant, or before a sonorant followed by a voiceless consonant, and long elsewhere;

(c) /ε, a, ɑ/ are short before a voiceless stop or affricate, before a sonorant followed by a voiceless consonant, or in any stressed syllable followed by a tautomorphemic unstressed syllable, and long elsewhere.

/o/ has been grouped alongside /e, əi, əʉ/ here (22b), but its status with regard to the subdivisions in (22) is unstable. In terms of the phonetic conditioning of quantity, it fluctuates between (22a) and (22b) according to sociolinguistic factors. The length conditions on the three categories of BV vowels in (22) can be illustrated by /i, e, ε/:

(23)

	/i/	/e/	/ɛ/	
_#	see	day	-	
_z	breeze	daze	Des	
_n	keen	rain	pen	
_d	seed	fade	dead	
_s	geese	face	mess	Long
_t	feet	fate	pet	Short

1.4.2 Historical background to MUE vowel classes.

/i/. The main source of BV /i/ is ME /e:/, as in *meet*, *feet*, *greet*, etc. Some ME /ɛ:/ items now categorically have /i/ in BV, e.g. *fever*, *lease*, *reason*, but others alternate between /i/ and /e/ (see under /e/). BV /i/ in some words is derived from ME /i/ before palatalised consonants, e.g. *king*, *fish*, *condition*, and more rarely in *brick*, *sick*.

/e/. ME /a:/ and /ai/ are generally merged under /e/ in BV, e.g. *gate*, *late*, *fade* and *rain*, *pail*, *stay*. A number of ME /ɛ:/ items alternate between standard /i/ and vernacular /e/, e.g. *beat*, *decent*, *leave*, *Jesus*. This alternating class is recessive in Belfast, as more and more of the items in question are being categorically transferred into the /i/ class, but it still maintains a vigorous existence in rural Lagan Valley and west Ulster speech. Recent research has revealed that, for some speakers at least, mid realisations of this alternating class are potentially contrasted with /e/, in which case another phoneme (/ę/) must be recognised (see 4.3 and Milroy & Harris 1980). The /e/ : /ę/ contrast is marginal since, although /ę/ tends to be slightly lower than /e/, realisations of the two phonemes often overlap.

/ɛ/. BV /ɛ/ is the main reflex of ME /e/, e.g. *bet*, *fed*, *less*. In common with most other dialects of English, this BV class contains items with ME /ɛ:/ shortened, e.g. *dead*, *head*, including some that now have /i:/ in RP, e.g. leap.[14]

In rural Lagan Valley speech, /ɛ/ is also the shortened reflex of ME /a:/ before /k/ (e.g. take, make), evidence that the latter vowel had already raised to half-open position in the relevant source dialects by the time the sporadic shortening in head, bread, etc. was underway. The source dialects in question were probably northern or Midlands English in which similar pronunciations survive today. In broad MUE vernacular /ɛ/ is also the usual development of ME /a/ before velars, e.g. in sack, bag, bang.

/a/ : /a:/. BV lacks the full /æ/ : /ɑ:/ contrast of RP (Sam vs psalm) or the equivalent SUE /a/ : /a:/ contrast. BV /a:/, which derives from ME /al/ or /a/ lengthened, is of marginal status, since it only occurs in a few words, e.g. father, rather, Palmer (contrasting with /a/ in gather, grammar), although even in these words, many speakers substitute /ɔ:/. The BV /a/ : /a:/ distinction is only maintained in polysyllables, an environment in MUE which is generally resistant to innovations that affect other contexts. Because of the conditioned lengthening of /a/ (see (22c)), the /a/ : /a:/ opposition is collapsed in all monosyllables, e.g. [sɑ:m] Sam, psalm.

BV /a/ is the primary reflex of ME /a/, e.g. man, pass, bad, bat. Three factors combine in MUE (and SUS) to make the lexical distribution of /a/ almost identical to that in modern Scottish English. Firstly, the historical lengthening of ME /a/, which has resulted in the present-day pattern of positionally determined quantity, has been entirely regular, which means that there has been no lexical split along the lines of RP /æ/ : /ɑ:/ (e.g. lass, mass with RP /æ/ vs glass, pass with /ɑ:/). Secondly, since historical /r/ is preserved in all environments in HE, there has been no large-scale addition of items to the /a/ class comparable to RP where the /ɑ:/ class includes all words that contained ME /ar/ followed by a consonant or pause (e.g. /kɑ:t/ cart, /kɑ:/ car). Thirdly, as already pointed out, the conditioned lengthening of /a/ has resulted in a near-complete merger of the Sam and psalm classes. The similarities between MUE, SUS and Scottish English with respect to the lexical distribution of ME /a/ reflexes are clear when we compare them with other dialects:

(24)

	n.England[15]	n.America[16]	s.England RP	s.HE, SUE	MUE	some Scots, SUS
bad	a	æ	æ	a	a	ɑ
mass	a	æ	æ	a:	a	ɑ
pass	a	æ	ɑ:	a:	a	ɑ
calm	ɑ:	ɑ:	ɑ:	a:	a	ɑ
card	ɑ:	ɑ:(r)	ɑ:(r)	a:r	ar	ɑr

In conservative MUE, /a/ and /ɑ/ tend to be neutralised under a mid or back low unrounded vowel before /p/ and less often before /t/, e.g. [tɑp] tap, top. Conservative MUE preserves an unrounded reflex of ME /a/ after labial-velars, a feature it shares with CUS, SUE and many dialects in Scotland, northern England and the eastern United States: compare MUE /hwat/ what, /ˈkwaləte/ quality with RP /wɒt/, /ˈkwɒlɩtɩ/.

/ɑ/ and /ɔ:/. BV /ɑ/ and /ɔ:/ are the main reflexes of ME /o/ (cot) and /au/ (caught) respectively. When long (under the conditions specified in (22c)), BV /ɑ/ has been merged with /ɔ:/ in some but not all varieties. Thus while /ɑ/ and /ɔ:/ are kept distinct in the short environments listed in (22c) in all MUE dialects (e.g. cot ≠ caught, body ≠ bawdy), some varieties neutralise the opposition in long environments, so that don = dawn and pod = pawed. The situation regarding this merger is quite complex and unstable and is discussed at greater length in 5.3.7. The extent of the ME /au/ : lengthened /o/ merger in progressive BV is similar to that in many United States dialects (see Kurath & McDavid 1961: 5). It is more extensive than in southern English, SUE and southern HE (where it is restricted to the lengthening context of following /f, θ, s/) but not as extensive as in Scots, Canadian and some other North American dialects. The lexical distribution of ME /o/ and /au/ reflexes in these various dialects can be summarised as follows:[17]

(25)

	cot	cod	fog	frost	caught
RP	ɒ	ɒ	ɒ	ɒ	ɔ:
rural s.England	ɒ	ɒ	ɒ	ɔ:	ɔ:
s.HE, SUE	ɑ	ɑ	ɑ	ɑ:	ɑ:
Atlantic States	ɑ̈	ɑ̈	ɔ:	ɔ:	ɔ:
MUE	ɑ	ɔ:	ɔ:	ɔ:	ɔ:
Upper Midwest, e.New England	ɒ̈	ɒ̈	ɒ̈	ɒ̈	ɒ̈
w.Pennsylvania	ɒ̈:	ɒ̈:	ɒ̈:	ɒ̈:	ɒ̈:
central Scotland	ɔ	ɔ	ɔ	ɔ	ɔ
w.Scotland, US	ɔ:	ɔ:	ɔ:	ɔ:	ɔ:

The BV /ɑ/class includes words with orthographic o that have /ʌ/ in RP, e.g. nothing, government, does. BV /ɑ/ before /v/ (e.g. oven, cover, govern, hover) seems to stem from British varieties which were unaffected by the raising of ME /o/ in that environment. The raising did affect the standard dialect of London but did not go to completion, so that we find in present-day RP cover, oven, shovel with /ʌ/ (the lowered reflex of ME /u/), alongside sovereign, poverty, hovel and hover (older RP and American English /ˈhʌvə(r)/).

/ɔ̈/ and /ʉ/. Just as in SUE, the situation with regard to /ɔ̈/ in BV is unstable. It is as well to discuss BV /ɔ̈/ along with /ʉ/, since these two vowels form an alternating class. Words containing BV /ʉ/ or /ɔ̈/ can be divided into three classes: (a) items that categorically contain /ʉ/ (mostly from ME /o:/, e.g. boot, cool, food, good); (b) items that categorically contain /ɔ̈/ (from ME /u/, e.g. cut, but, bud, or ME /o:/ through shortening, e.g. blood, flood); and (c) items that alternate between /ɔ̈/ (the vernacular form) and /ʉ/ (the standard form), e.g. foot, pull, put. The alternating class contains around thirty items and includes reflexes of both ME /u/ and /o:/ shortened. For a more detailed discussion of the /ʉ/ ~ /ɔ̈/ alternation in BV see 3.5.5, McLaren 1976 and J. Milroy 1980.

BV /ʉ/ is the primary reflex of ME /o:/ when not affected by early or late shortening (presumably via [u:] in the British source dialects). Before /r/, BV /ʉ/ has two main sources: (a) undiphthongised ME /u:/, e.g. course, court; and (b) ME /o:/, e.g. floor, whore, door. Thus MUE is like SUE in that it retains a high vowel before historical /r/ where the equivalent RP vowel has been lowered to mid position. (Compare BV /hʉr/ whore, /dʉr/ door with RP /hɔ:(ə)/, /dɔ:(ə)/.)

ME /ɛu/ (dew) and /eu/ (Tuesday) are merged in BV, usually under [jʉ(:)]. The set of ME /ɛu, eu/ items has, however, been greatly reduced (much more so than in RP) by the loss of the ongliding [j] in certain contexts (as in Scots) resulting in their transfer into the BV /ʉ/ class. This loss of [j] has occurred not only after /r/ as in RP (e.g. /rʉd/ rude), but also after /l/ (as in progressive RP, e.g. /lʉd/ lewd), and also to a large extent after /s/ (e.g. /sʉər/ sewer, /əˈsʉm/ assume). Elsewhere, [j] from this source has coalesced with preceding /t, d, s, h/, e.g. /tʃʉn/ tune, /dʒʉk/ duke, /ˈtɛ̈ʃʉ/ tissue, /hjʉdʒ/ (= [çʉdʒ]) huge, as in many other present-day dialects.[18]

/ɛ̈/. BV /ɛ̈/ has as its main source ME /i/ (e.g. bit, bid, kiss), but it also occurs in a number of words that contained ME /e/, particularly before /v/ and alveolars (e.g. never, every, get, yet, yes, yesterday).

/o/. BV /o/ is the main development of ME /ɔ:/ (e.g. boat, toe, coach) and also of ME /ou/, e.g. blow, know, slow (except before /l/ - see under /əʉ/).

/əi, əʉ, ɔe/. BV /əi/ is the main reflex of late ME /i:/ (including ME /e:/ before /r/, e.g. briar, choir, and early ME /i/ before /x/, e.g. right, fight), e.g. wine, ride, bite. BV /əʉ/ is the result of the diphthongisation of ME /u:/ (e.g. cow, loud, shout) and is also the development of late ME /ou/ (from earlier /ɔ:/ or /o/) before /l/ (e.g. old, sold, bold). ME /ui/ and /oi/ have fallen together under /ɔe/ in BV, e.g. boil, point, Boyd.

1.4.3 Vowel quality in Belfast Vernacular. For many BV vowels, conditioned length variation is accompanied by often quite extreme quality differences, and in this allophonic diversity it is possible to discern the competing influences of US and SUE.

BV /e/ shows a wide spread of allophonic realisations. When long, it is realised as [ɛ:] morpheme-finally, e.g. [dɛ:] day, [sɛ:]

say. In much of Lagan Valley urban speech (including BV), /e/ before /r/ is realised as long central [ɜ:] (e.g. [dɜ:ɽ] dare, [stɜ:ɽ] stair), although [ɛ:] also occurs in this position in more conservative (typically rural) varieties. In the other environments in which /e/ is long (as specified in (22b)), it is realised as monophthongal [e:] in some rural MUE varieties. In urban MUE, however, /e/ is usually diphthongal in these contexts, viz. [ɪ·ə], e.g. [fɪ·əd] fade, [bɪ·əð] bathe. When short, the first mora of diphthongal /e/ tends to be lower, viz. [eə], e.g. [feət] fate, [feəs] face. Morpheme-final /e/ retains its half-open monophthongal quality even when followed by an inflectional suffix, thus producing minimal pairs such as the following:

(26)

+ morpheme boundary				- morpheme boundary	
[dɛ:]	day	[dɛ:z]	days	[dɪ·əz]	daze
[fɹɛ:]	fray	[fɹɛ:d]	frayed	[əˈfɹɪ·əd]	afraid

In rural MUE, the diphthongs /əi, əʉ/ are realised in all positions as a short central first mora followed by a perceptually more prominent second mora, e.g. [tə̆i] tie, [kə̆ʉ] cow. In BV, however, the diphthongs are subject to positionally determined quality variation. When the diphthongs are short (under the conditions outlined in (22b)), their qualities are similar to those found in rural varieties, except that the first mora of /əi/ tends to be realised as front [e],e.g. [tĕit] tight, [mĕis] mice. Long variants in closed syllables tend to have length shifted on to the first mora, e.g. [se·ĭd] side, [lə·ʉ̆d] loud. This falling pattern is maintained in word-final position, but here there is usually a marked lowering of the first element in both diphthongs to [æ], e.g. [tæ:ᶦ] tie, [næ:ᶶ] now. The difference between the BV falling diphthongs [æ:ᶦ], [æ:ᶶ] and the rural MUE rising diphthongs [ə̆i], [ə̆ʉ] is quite striking (e.g. [tæ:ᶦ] vs [tə̆i] tie) and is recognised and commented on by northern HE speakers.

The second mora in word-final /əʉ/ is often unrounded in BV, so that the diphthong may fall together with /əi/ in this position, e.g. [næ:ᶦ] nigh, now. This merger is sometimes avoided by articulating the second element in /əʉ/ with the front of the tongue in a high bunched position, together with a degree of pharyngeal constriction.

The tongue tip is not reverted but the perceptual effect is very similar to the rhotacised quality that is produced by retroflexion.

BV /o/ usually has a typically northern HE raised-from-half-close overrounded quality, e.g. [bo̝t] boat. The close overrounded quality of the vowel makes it liable to be perceived as [u] by speakers of dialects other than northern HE. Northern HE boat, show, road, for example, are often heard as boot, shoe, rude. Since /ʉ/ (in boot) is a central vowel, /o/ is the highest back vowel in the BV system, which may account for its ambiguous position with regard to the length conditions outlined in (22). It is partly governed by the same quantity conditions as /e/ (i.e. (22b)) but also shows signs of being susceptible to Aitken's Law (22a), possibly since the latter applies only to high vowels (/i, ʉ/) in MUE. /o/ is usually monophthongal in MUE, but diphthongal [ou] is found in corrected speech.

Like /o/, BV high front /i/ and high central lightly rounded /ʉ/ are monophthongal in conservative speech. In innovating MUE urban varieties, however, diphthongal realisations of long variants are to be found, especially in word-final position. The diphthongs usually take the form of a central half-close onglide followed by a close nucleus, e.g. [tᵊi:] tea, [tᵊʉ:] two.

The first mora of the diphthong /ɔe/ is usually similar in quality to /ɔ:/, i.e. centralised [ɔ̈] (e.g. [bɔ̈e] boy), although lower realisations with [ɒ] or [ɑ] are to be found in some conservative MUE varieties (e.g. [bɑe] boy).

Sociolinguistically constrained variation in the realisation of /ɛ̈/ in Belfast occurs along a phonetic continuum, ranging from broad vernacular [ɛ̈] to prestige [ɪ]. The realisation of /ɔ̈/ is also variable; it is rounded in conservative varieties (e.g. [bɔ̈t] but) but is often unrounded in more corrected speech (e.g. [bʌ̈t]). Before /ʃ/, both /ɛ̈/ and /ɔ̈/ are frequently accompanied by closing front off-glides, e.g. [fɛ̈ⁱʃ] fish, [bɔ̈ⁱʃ] bush (cf. similar developments in some southern English and United States dialects: Wright 1905 (24, 53); Kurath & McDavid 1961 (103-104)).

The quality variation in BV /ɛ, a, ɑ/ will be discussed in greater depth than any of the other vowels, since these three vowels show the most wide-ranging allophonic diversity in the system. Each of the vowels in questiòn displays the familiar elliptical distribution pattern of phonetic variants in the vowel area, which can often be taken as a sign of change in progress (Labov 1972a: ch 9; Labov, Yaeger & Steiner 1972: ch 7).

When long, BV /ɛ, ɑ/ are mid and in the case of /ɑ/ rounded and centralised (sometimes as far as [ɵ]), e.g. [bɛ:d] bed, [pɔ̈:d] pod. When short, both vowels tend to be low. Short /ɛ/ is realised as [æ] or even as low as cardinal [a], e.g. [bat] bet. Short /ɑ/ can be low back unrounded   or in broadest vernacular advanced as far as central [ä] or even [a̠], e.g. [pa̠t] pot. The quality characteristics of positionally short /ɛ, ɑ/ and phonemically short /ɛ̈, ɔ̈/ mean that MUE exhibits a symmetrical lowering of historically short /i, e, o, u/, a more extreme version of the development that has produced /ɪ, ɛ, ɒ, ʊ/ in RP and related dialects:

(27

ME		BV	BV		ME
i	→	ɛ̈	ɔ̈	←	u
e	→	æ	ɑ	←	o

/a/ exhibits the most extreme allophonic diversity of all BV vowels, ranging from [ɛ(:)] or [æ(:)] after palatalised /k, g/ or before palatalised /k, g, ŋ, ʃ, tʃ/, through [æ] or [a] before /t/, [ä] or [ɑ̈] before /p/, [ɑ:] or [ɒ:] before voiced obstruents and voiceless fricatives, to [ɒ:] or even [ɔ:] before nasals. Before /r/, /a/ is central or front-central in rural MUE speech but is becoming increasingly backed and frequently rounded in more innovating urban varieties. Long back realisations of /a/ as well as long variants of /ɛ, ɑ/ tend to develop centring off-glides, e.g. [bɒ:ᵊd] bad, [bɛ:ᵊd] bed, [pɔ̈:ᵊd] pod. The pattern of fronting, backing and raising in BV /a/ is by no means rigid and is subject to sociolinguistic variation (see J. Milroy 1982a). Nevertheless the following sample realisations can be said to be typical of conservative BV:

(28)

[ɛ]	[æ]	[a]	[ä]	[ɑ:]	[ɒ:ᵊ]	[ɔ̝:ᵊ]
bag	back	flat	map	bar	bad	hand
fag	sack	sat	tap	star	pass	man
	cat				laugh	

Palatal glides tend to develop between palatalised consonants and MUE /a/ and to a lesser extent /ɛ/. These glides are particularly noticeable when /ɛ/ is low or /a/ is backed. Pronunciations such as [cjɑ:ɽ] car, [ˈɟjɑ:ɽd] guard are common in rural MUE and conservative BV speech. As has been pointed out, front realisations of /a/ are the norm in the environment of palatalised consonants in conservative MUE speech. In more innovating varieties, central realisations of /a/ occur in this context with the result that intervening palatal glides can become even more prominent, e.g. conservative [bɛ:g̟] bag, [bæʃ] bash, [bæ:ŋ̟] bang vs innovating [bä:ʲg̟], [bäʲʃ], [bä:ʲŋ̟]. In the case of /ɛ/, pronunciations such as [g̟ʲæt] get and [lɛ:ʲg̟] leg are not uncommon. There is a complex trade-off between preceding and following environments which have competing fronting or raising or lowering influences on /a/. For example, in /kan/ can the /k/ favours a front variant of /a/, while /n/ favours a back realisation. There appears to be a shift in the way such tensions are being resolved in BV, with backing showing signs of winning out over fronting. This is discussed in greater depth in 3.6.4.

The quality of BV /ɔ:/ (in caught) is subject to sociolinguistic variation. In some varieties, the vowel is realised as long advanced-from-back mid round (e.g. [tɔ̈:m] Tom), in which case it falls together with /ɑ/ in the environments in which the latter is lengthened (specified in (22c)), i.e. dawn = don. In conservative varieties, however, an /ɑ/ : /ɔ:/ contrast is potentially maintained in all environments, since in these dialects /ɔ:/ tends to be realised as a lower, more peripheral vowel ([ɒ:] or [ɑ:]) than lengthened /ɑ/ (e.g. [dɒ:n] dawn vs [dɔ̈:n] don). (See 3.6.5 for a more detailed discussion of the /ɑ/ : /ɔ:/ contrast.)

1.4.4 Length and quality alternations in BV /ɛ, a, ɑ/. (29) is a more detailed account of the conditions governing length in BV /ɛ, a, ɑ/ than the brief outline given in (22c).

(29)

BV /ɛ, a, ɑ/ are short before:-
- (a) voiceless stops and affricates;
- (b) a sonorant followed by a voiceless consonant;
- (c) any consonant followed by an unstressed syllable in the same morpheme.

(29) continued

BV /ɛ, a, ɑ/ are long elsewhere, i.e. before:-

(d) voiceless fricatives;
(e) voiced obstruents;
(f) sonorants not followed by a voiceless consonant.

In fact the statements in (29) need two further refinements, both connected with the role of voiceless fricatives in the length environments. First, while the voiceless fricatives /f, θ, s/ regularly induce lengthening in /ɛ, a, ɑ/, short variants often occur before the non-anterior fricatives /ʃ, x/ in conservative MUE. Thus while the vowels in less, pass, boss are long, those in Kesh (place-name), cash, ach (exclamation), lough ([lɑx]) are variably short (the conservative variant) or long (the innovating variant). Second, condition (29c) needs some fine-tuning with regard to its application in certain MUE varieties. In morphologically simple polysyllables /f, θ, s/, in contrast to other consonants, may condition length in /ɑ/ in conservative speech, e.g. conservative [ˈkɔ̈:fe] coffee, [ˈɔ̈:spətl̩] hospital vs innovating[ˈkɑfe], [ˈhɑspətl̩].

The combination of quantity and quality variation in MUE /ɛ, a, ɑ/ produces the following typical allophonic alternations:

(30)

	long	short
/ɛ/	[mid]	[low]
/a/	[back]	[front]
/ɑ/	[mid] [round]	[low] [unround]

These alternations are illustrated by the following forms (references to the length conditions listed in (29) are given in parentheses):

(31)

/ɛ/	[short low]	(29a)	pet, peck, sketch
		(29b)	bent, belt, else
		(29c)	ready, Betty, penny, berry
	[long mid]	(29d)	less, left, Beth
		(29e)	fed, leg, Des, hedge
		(29f)	ten, tell, bend, weld
/a/	[short front]	(29a)	fat, back, catch
		(29b)	pant, salt,[19] manse
		(29c)	chatter, January, saddle

(30) continued

	[long, back]	(29d)	pass, draught, path
		(29e)	bad, tab, Daz, badge
		(29f)	Sam, pal, land
/ɑ/	[short, low, unround]	(29a)	pot, sock, Scotch
		(29b)	romp, golf, (salt)
		(29c)	body, honour, collar, sorry
	[long, mid, round]	(29d)	loss, loft, froth
		(29e)	pod, dog, Ros, lodge
		(29f)	Tom, doll, pond

The characteristic of morphologically simple polysyllables as conditioning short variants of /ɛ, a, ɑ/ (as expressed in (29c)) is not shared by morphologically complex syllables. When /ɛ, a, ɑ/ occur in a stressed syllable that is followed by a morpheme boundary and an unstressed syllable in the same phonological word, the length and quality conditions operate as in monosyllabic contexts. The result is that MUE has minimal or near-minimal pairs where one member is a monomorphemic polysyllable and the other contains a derivational or an inflectional suffix:

(32)

- morpheme boundary		+ morpheme boundary	
[ˈtænəɹ]	tenor	[ˈtɛ:nəɹ]	tenner
[ˈwædn̩]	wedding (n)	[ˈwɛ:dn̩]	wedding (participle)
[ˈbɑɽən]	baron	[ˈbɑ:ɽən]	barring
[ˈk̟ænən]	canon	[ˈk̟ʲɑ:nən]	canning
[ˈsɑle]	Sally	[ˈpɑ:le]	('friendly')
[ˈɹɑbn̩]	robin	[ˈɹɔ̈:bn̩]	robbing

There are two exceptions to the conditions governing the realisation of MUE /ɛ, a, ɑ/ in polysyllables outlined in (29c). Firstly, as already mentioned, following /f, θ, s/ in conservative MUE tend to condition length in /ɑ/ in polysyllables regardless of morphological structure. Thus both morphologically complex and simple polysyllables may contain long alternants of /ɑ/ before /f, θ, s/:

(33)

+ morpheme boundary		- morpheme boundary	
[ˈtɔ̈:sn̩]	tossing	[ˈɔ̈:spətl]	hospital
[ˈkɔ̈:fn̩]	coughing	[ˈkɔ̈:fe]	coffee

As we shall see in 2.6.5, this feature of MUE voiceless fricatives is an important clue to establishing the relative chronology of the historical changes that have given rise to the vowel length conditions of present-day MUE. A second exception to (29c) is that familiar forms of proper names containing the diminutive suffix /-e/ (e.g. Tommy) tend to be treated as morphologically simple, with the result that short variants of /ɛ, a, ɑ/ occur before consonants that otherwise regularly induce lengthening:

(34)	[ɛ:d]	Ed	[ˈæde]	Eddy
	[bɛ:n]	Ben	[ˈbæne]	Benny
	[dɑ:n]	Dan	[ˈdɑne]	Danny
	[tɔ̈:m]	Tom	[ˈtɑme]	Tommy

1.4.5 Neutralisation of BV vowel contrasts. The proliferation of allophony in many BV vowels gives rise to several areas of potential overlap (see Fig 1-2). The suspension of the /ɑ/ : /ɔ:/ opposition in the long environments specified in (29) has already been mentioned (1.4.3), e.g. cot ≠ caught, but don = dawn. The /a/ : /ɑ/ contrast may be neutralised under a low central vowel before voiceless anterior stops, especially before /p/ (e.g. top = tap, chop = chap), and occasionally in morphologically simple polysyllables (e.g. follow = fallow, borrow = barrow).

The /ɛ/ : /a/ opposition is also potentially neutralised in several environments, partly as a result of two processes having opposite effects on the quality of the two vowels. One involves the lowering of /ɛ/ in the short environments specified in (29); the other involves the front-raising of /a/ in certain contexts, especially before palatalised velars. This results in a partial phonemic overlap (Bloch 1941) of the two vowels for many speakers. For example, [æ] may realise lowered /ɛ/ before /t, p/ (e.g. [læt] let, [stæp] step) or raised /a/ before /k/ (e.g. [bæk̟]. Frequently the phonemic overlap is complete before palatalised velars, so that the /ɛ/ : /a/ contrast is neutralised under [æ] before /k/ and under [ɛ:] before /g/. Many speakers, even in formal styles, do not distinguish such pairs as neck : knack, heckle : hackle, dreg : drag. The pattern of overlap among BV /ɛ, a, ɑ, ɔ:/ can be summarised as follows:

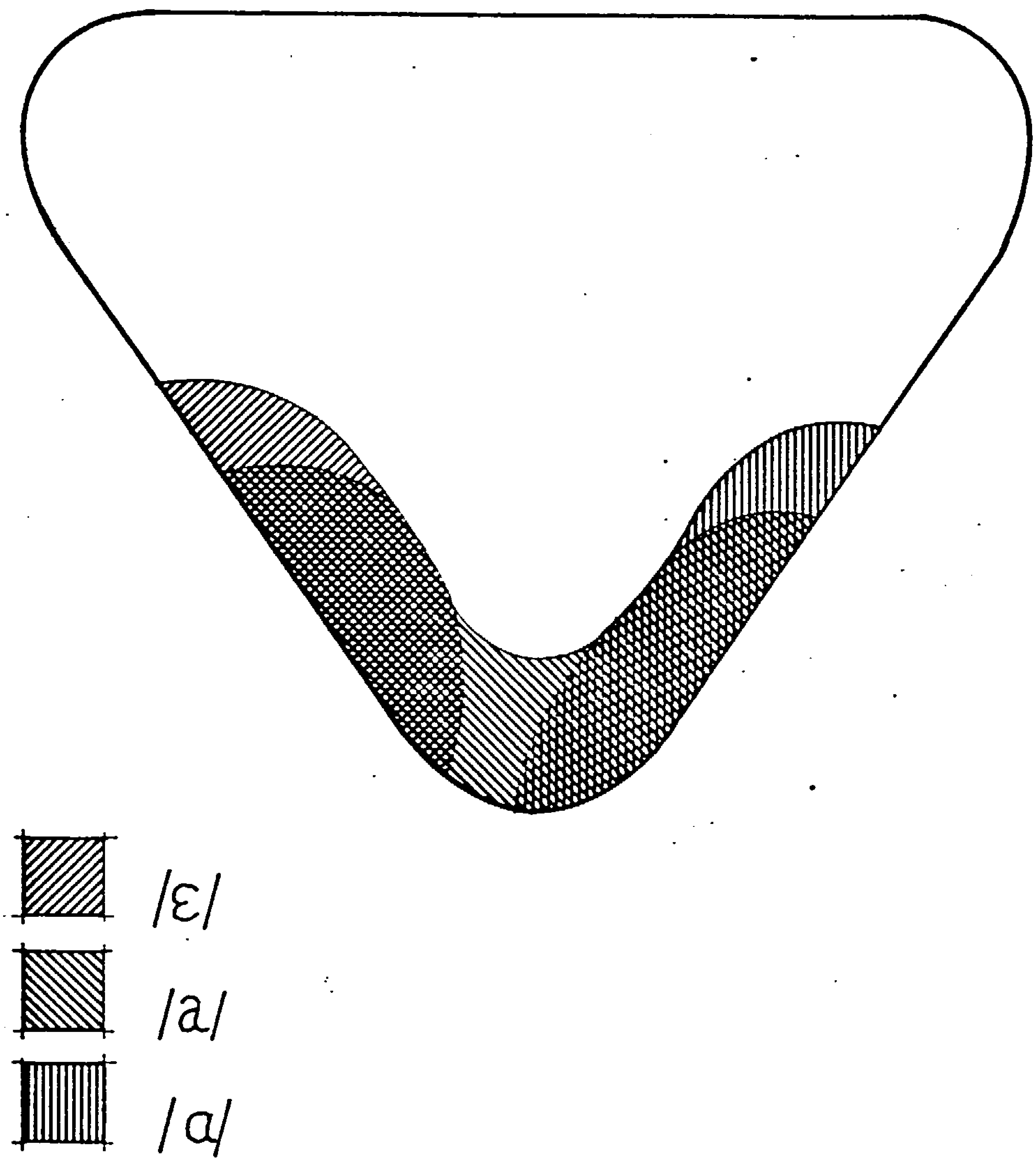
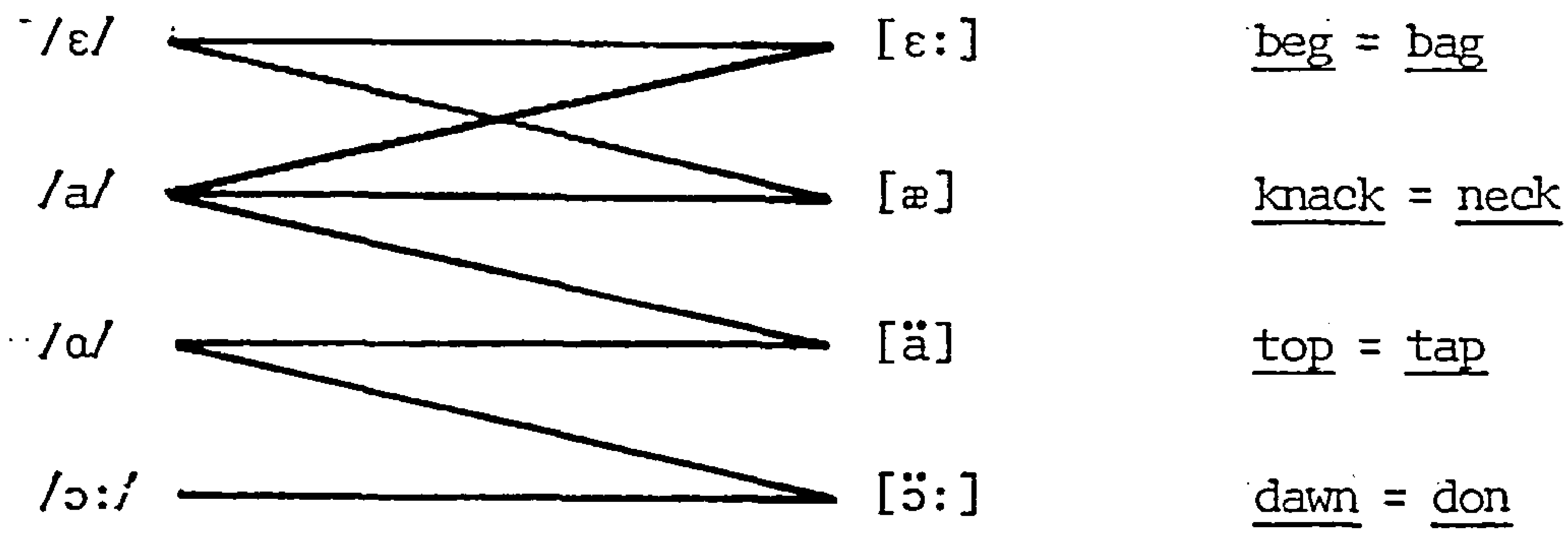


Fig 1-2. Schematic representation of overlap in the realisation of BV /ε, a, ɑ/.

(35)



These neutralisations are usually reported by BV speakers in minimal pair tests. However, the reliability of such self-reports cannot be taken for granted in the light of recent findings on falsely reported mergers (discussed in detail in 5.3).

In common with many other varieties of English, BV exhibits a large-scale reduction before /r/ of the maximal system of vocalic contrasts. This is primarily due to the centralising effect that /r/ has on preceding vowels in these dialects. A near-maximal monophthongal subsystem is found before /r/ in morphologically simple polysyllables in most types of MUE:

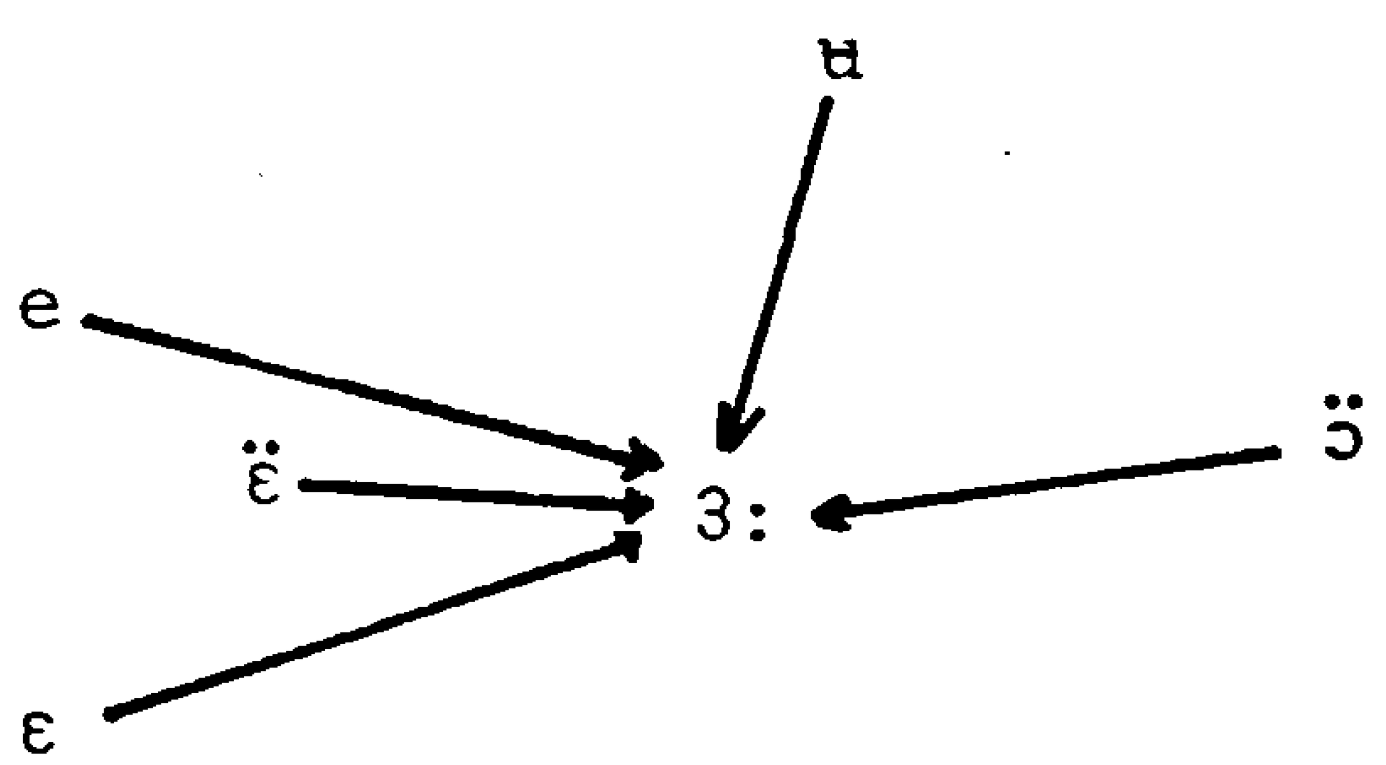
(36)

maximal system _t		_/rV̆/
feet	i	Geary
fit	ɛ̈	spirit
fate	e	dairy
bet	ɛ	Derry
but	ɔ̈	hurry
boot	ʉ	Newry
bat	a	Barry
pot	ɑ }	sorry
bought	ɔː }	
boat	o	story

In some MUE varieties (including BV), the /a/ : /ɑ~ɔː/ contrast is lost before /rV̆/, so that Larry = lorry. Before /rCV/, conservative MUE preserves the /ɑ~ɔː/ : /o/ opposition (e.g. /bɔːrdər/ border vs /bordər/ boarder), while progressive urban speech neutralises it under [oː]. Before /r/ in monosyllables, conservative MUE has a slightly reduced vocalic system: not only the /ɑ/ : /ɔː/ opposition is lost (as in polysyllables) but also the /e/ : /ɛ/ contrast in this environment (so that care = Kerr). Progressive MUE has a greatly reduced set of vocalic contrasts in this position. As in the _/rCV/ context, the /ɑ~ɔː/ : /o/

opposition is neutralised under [o:], so that for instance for = four, horse = hoarse. Furthermore, the general tendency for certain vowels (particularly /ɛ̈, ɔ̈, e, ɛ/ and to a lesser extent /ʉ/) to centralise before /r/ in monosyllables (see (37)) has resulted in progressive MUE having a markedly defective distribution of monophthongs in this position. (Compare the southern English collapse of ME /i, e, u/ under /3:/ in the same environment, e.g. bird, fern, fur.)

(37)



The conservative MUE eight-way monophthongal contrast in the context of - /r#/ can be reduced to as few as four terms in BV:

(38)

Maximal system	_ /r(C)#/ Conservative MUE		BV
i	i:	fear	i:
ɛ̈	3:	fir	
e	ɛ:	care	
ɛ		Kerr	3:
ɔ̈	ɔ̈	fur	
ʉ	ʉ:	poor	
a	a:	far	ɑ:
ɑ			
ɔ:	ɒ:	for	o:
o	o:	four	

The pre -/r/ vocalic subsystem of progressive MUE is further reduced by the monophthongisation of /əi, əʉ/ in this environment. While conservative MUE preserves the diphthongal character of these vowels in words such as [təiəʴ] tire, [təʉəʴ] tower, BV typically has low front monophthongal [æ:] or [a:] for /əi/ (e.g. [tæ:ɼ] tire) and central [ɐ:] for /əʉ/ (e.g. [tɐ:ɼ] tower). In progressive BV, /əʉ/ before /r/ has merged with /a/ under [ɑ:], e.g. [tɑ:ɼ] tar, tower. (Sequences of /ɔe/ plus tautosyllabic /r/ are not usual in MUE: words such as lawyer, Boyer, Sawer are disyllabic.)

It has already been noted that BV /e/ is realised as [ɛ:] morpheme-finally, e.g. [dɛ:] day. Since [ɛ:] realises /ɛ/ elsewhere (e.g. [bɛ:d] bed), it would be just as feasible, on the basis of phonetic similarity, to assign morpheme-final [ɛ:] to /ɛ/. What is clear is that there is a partial phonemic overlap of /e/ and /ɛ/ in BV. We may prefer to treat final [ɛ:] as an allophone of /e/ on the grounds that historically short vowels (including the ME source of BV /ɛ/) do not occur in this position in most present-day dialects of English. For example, RP /ɪ, ɛ, æ, ɒ, ɔ, ʌ/ do not appear in word-final stressed contexts. However, this morpheme structure condition has been disrupted in MUE (and in Scots dialects including US) by the loss of phonemic vowel length. While it is true that MUE inherently short /ɛ̈, ɔ̈/ (in bit, but) never occur in morpheme-final position, the positional lengthening of /ɛ, a, ɑ/ from ME short /e, a, o/ has resulted in their overlapping with vowels which historically were free to occur in this context. Thus [ɛ:] realises /e/ finally and /ɛ/ non-finally; [ɑ:] realises the marginal, inherently long vowel /a:/ (in father as well as positionally lengthened /a/; [ɔ̈:] realises inherently long /ɔ:/ and positionally lengthened /ɑ/. In word-final position, there is complete phonemic overlap between BV /ɛ/ and /e/, /a/ and /a:/, and /ɑ/ and /ɔ:/:

(39)

/ɛ/ /e/	/a/ /a:/	/ɑ/ /ɔ:/
[ɛ:]	[ɑ:]	[ɔ̈:]
day	da ('father')	saw

1.5 Northern Hiberno-English consonants

Certain consonantal characteristics are common to most types of HE, both northern and southern. Examples are: the retention of historical /r/ in all positions, including preconsonantally and prepausally where it has been lost in the nonrhotic dialects of England, the United States and the southern hemisphere; the realisation of /l/ as clear in all positions (although velarised variants are increasingly common in progressive Dublin and Belfast speech); and the preservation of the /hw/ (= [ʍ]) vs /w/ (orthographic wh vs w) contrast so that which ≠ witch . Some of the consonantal features which distinguish southern from northern HE include: the stopping of dental fricatives (e.g. [t̪ɩn] thin, [d̪ɛm] them); and the lenition of final voiceless stops. Lenited final /t/ in southern HE usually displays the airflow characteristics of a voiceless tap, particularly in prevocalic position. In some varieties it is realised as a voiceless apico-alveolar spirant (distinct from laminal /s/)when it occurs finally before a pause or a consonant.

With southern HE, northern HE shares the retention of historical /r/ in all environments, although the details of its realisation vary throughout the country. In dialects where Irish influence figures prominently, it is common to find taps or trills in all positions. In the majority of dialects, however, a post-alveolar approximant is usual in word-initial position, e.g. [ɹɔ̈n] run. Postvocalically, /r/ is realised as a retroflex approximant after long vowels or as the addition of retroflex quality to preceding short vowels, as in some rhotic dialects of north America and the south and west of England, e.g. [bɑ:ɾ] bar, [fɔ̈˞] fur.

The realisation of /r/ in this position as a velar-pharyngeal approximant (with or without an accompanying apical gesture), which is common in some Leinster as well as many United States dialects (see Higgs 1980) is not usual in northern HE. Nevertheless, realisations of this type are recorded by the Tape-Recorded Survey of Hiberno-English as far north as Carlingford on the eastern periphery of the SUE area. A dental tap occurs after dental stops and, in those (mainly northern) dialects that have them, dental fricatives, e.g. [t̪ɾ̪̊i:] tree, [θɾ̪̊i:] three.

Dental articulations of /t, d, n, l/ in all environments occur in some conservative dialects of HE, especially those in which Irish influence has been prominent. In other dialects dental realisations only appear in certain /r/ environments, alveolar articulations being usual elsewhere. In these dialects, sequences of /d/ or /t/ plus /r/ are realised as dental stop plus dental tap, e.g. [t̪ɾ̪̊ʉ:] true, [d̪ɾ̪ʉ:] drew. /t, d, n, l/ are also realised as dentals before /-ər/, e.g. [ˈlad̪ə˞] ladder, [ˈmat̪ə˞] matter, [ˈdɛ̈n̪ə˞] dinner, [ˈpɛ̈l̪ə˞] pillar. The latter realisation rule only applies morpheme-internally, which produces minimal or near-minimal pairs such as:

(40)

[ˈbæt̪əɹ]	better (compar. good)	[ˈbætəɹ]	better ('one who bets')
[ˈmat̪əɹ]	matter	[ˈfatəɹ]	fatter
[ˈpit̪əɹ]	Peter	[ˈhitəɹ]	heater

Dental articulations of /d, t̪, n, l/ are a rural stereotype in Belfast, progressive BV having alveolar realisations in all positions.

Northern HE lacks the typically southern spirantisation of final voiceless stops. However, most northern varieties other than US share with southern HE the lenition of intervocalic /t/, which is realised as a voiceless tap (e.g. SUE [ˈpɪɾ̥ɪ] pity) or in some types of MUE (including BV) as a voiced tap, in which case it merges with tapped medial /d/ (e.g. [ˈlaɾəɹ] latter, ladder). The voiceless tap is not only found in southern HE and SUE but also in corrected MUE. In urban Lagan Valley speech the lenition of medial /t, d/ is extended to /ð/ which is often deleted in this position, e.g. [ˈmɔ̈:əɹ] mother, [təˈgæ:əɹ] together.

The tapping of alveolar plosives in MUE interacts with the conditions that govern length in /ɛ, a, ɑ/ in ways that closely parallel the well-known American English writer : rider case (see for example Kenyon 1967: 126-127). According to the length conditions outlined in (29), following /t/ is a 'short' environment, /d/ a 'long' one (e.g. [bæt] bet vs [bɛ:d] bed). What effect do these consonants have on the length of preceding /ɛ, a, ɑ/ when they both appear intervocalically under inflection as voiced taps (e.g. in betting, bedding)? Two different patterns can be observed:

(41)

(a)		(b)	
[bɛ:ɾən]	bedding	[bɛ:ɾən]	bedding = betting
[bæɾən]	betting		

In one dialect-type (41a), the phonological identity of the alveolars is recoverable from the length (and sometimes quality) of preceding /ɛ, a, ɑ/. Long allophones of these vowels occur before [ɾ] < /d/, short allophones before [ɾ] < /t/. In another dialect-type (41b), [ɾ] as a voiced segment regularly conditions long vowel realisations regardless of its etymological source.

One way of putting this is to say that the length conditions operate on phonological structure in dialect (41a) (i.e. they are phonotactic constraints) but on phonetic structure in (41b). In classical generative terms, the difference between the two dialect-types might be said to be one of rule order. In (41a) the vowel-length rule operates before the tapping rule (counter-feeding order); in (41b) the reverse ordering relation holds (feeding order). (The sociolinguistic evidence points to dialect-type (41b) as being the innovating pattern. This might be interpreted by some generativists as confirming claims that rule reordering changes tend to be directed towards the maximisation of feeding order - see Kiparsky 1971: 46ff; Hooper 1976: 91ff.)

In US, but not in SUE, voiceless stops and affricates are usually preglottalised in medial and final position, e.g. [ˈwʌn̪ʔt̪əʴ] <u>winter</u>, [ˈlʌʔke] <u>lucky</u>, [pəiʔp] <u>pipe</u>. Glottalised /t/ may lose its oral constriction, as in some British English dialects, e.g. [pɔːʔ] <u>pot</u>. In BV, this glottalisation is only generally adopted before syllabic sonorants, e.g. [ˈbɑʔtl̩] or [ˈbɑʔl̩] <u>bottle</u>, [ˈrɑʔtn̩] or [ˈrɑʔn̩] <u>rotten</u>. However, in some types of BV where US influence has been strongest voiceless stops can also be glottalised in final position. The closing of the glottis in word-final voiceless stops is often accompanied by a raising of the larynx, which produces compression of the air between the glottal and oral closures and results in an ejective release, e.g. [wik'] <u>week</u>. This is particularly true of stops following the high vowels /i, ʉ/. As in many other dialects of English, the MUE phonological distinction [+voice] vs [-voice] in word-final stops is not always carried by a phonetic voicing contrast, since both sets of stops are often phonetically voiceless in this position. The phonological contrast may be signalled in the length of the preceding vowel in many dialects of English, but this is not true of MUE /i, ʉ/ (and the equivalent vowels in US), since these are short before both phonologically voiceless and voiced stops in accordance with Aitken's Law. The phonetic glottalised vs nonglottalised contrast (with accompanying glottalic vs pulmonic release) is therefore important in MUE and US as a means of distinguishing sequences of /i, ʉ/ plus phonologically voiceless stop from sequences of the same vowels plus voiced stop (e.g. /sit/ ⟶ [sit'] <u>seat</u> vs /sid/ ⟶ [sit] <u>seed</u>).

The word-final deletion of stops, which is characteristic of many nonstandard English dialects (see for example Labov 1972b: 44ff.; Guy 1980; Neu 1980; Chambers 1980), is also a feature of northern HE. Deletion of the stop in final fricative-plus-stop combinations is frequent, e.g. BV [bɛ:s] best, [lɛ:f] left, [ɑ:s] (alongside [æks] ask). In conservative speech, the loss of stops is often categorical in final stop-stop and sonorant-stop sequences, e.g. [kɛp] kept, [hɑ:n] hand, [əʉl] old. Evidence that the lexical representation of such forms has been restructured for many speakers to exclude the final stop is found in the frequent hypercorrections in which a stop is inserted where historically none was present, e.g. [klɛ̈ft] cliff, [gʲɑ:st] gas, [fo:ld] foal. In common with most Scots dialects, CUS and its immediate ancestors have been affected by a simplification of the historical process whereby word-final /b, g/ have been deleted after homorganic nasals, e.g. /lamb/ —> /lam/ lamb, /sɪŋg/ —> /sɪŋ/ sing. Not only has this process been simplified to include /d/ in the same context (e.g. /hand/ —> /han/ hand) but it has also been generalised to medial position, e.g. /θɪmbəl/ —> /θɪməl/ thimble, /fɪŋgər/ —> /fɪŋər/ finger, /kandəl/ —> /kanəl/ candle.

The conservative nature of HE in relation to British English dialects is further evidenced by the fact that no HE variety exhibits h-dropping. The distribution of /h/ in HE is also different from any British English dialect. Not only does it occur initially, as in all non-h-dropping dialects, but it also appears medially before an unstressed vowel. Words containing /h/ in this position are overwhelmingly Irish or Scots in origin - mostly proper names or dialectal items, e.g. /ˈdɑhərtɛ/ Doherty, /ˈkahəl/ Cathal, /ˈbrɑhən/ 'gruel'.

In some HE varieties, including conservative SUE and MUE in west Ulster, a voiceless glottal fricative may occur word-finally, again in words of Celtic origin, e.g. [lɑh] lough. In most northern HE dialects, the segment in the same words is a voiceless velar fricative, e.g. US [lɔ:x] lough. In these varieties, [x] may also occur in medial position where it fluctuates with [h], e.g. [ˈdɑnəxe]Donaghy. The velar fricative has its highest incidence in CUS, where it is the retained reflex of historical /x/ (mostly gh in modern English orthography), e.g. [θɔ:xt] thought, [næ̈xt] night, [tʃʌ̈x] tough. In SUS and MUE, [x] is restricted to proper names and a few dialectal words or pronunciations, e.g. SUS [lɔ:x] lough, [t̪ɾ̪ɔ:x] trough, [ʃʌ̈x] sheugh (see Adams 1981). In those dialects that have both glottal and velar fricatives, we would be justified on grounds of economy in treating them as allophones of one phoneme. This treatment is supported by traditional phonemic principles: [h] and [x] are phonetically similar and they are in complementary distribution (or in free variation medially in some dialects). Furthermore, a greater degree of pattern congruity is achieved in the distributional properties of voiceless fricatives in the dialects in question: /f, θ, s, ʃ/ and the phoneme which is realised by [h] and [x] all occur initially, medially and finally. For example, in SUS we have:

(42)

#_	V_V	_#
[sɪ̈p] sip	[ˈfɔ:sl̩] fossil	[lɔ:s] loss
[hɪ̈p] hip	[ˈpɔ:xl̩] pochal	[lɔ:x] lough

Some of the consonantal characteristics of conservative HE are being lost in progressive urban vernaculars, so that the latter are similar to modern British English vernaculars in certain respects. In innovating Dublin and Belfast speech, for example, it is common to find: velarised realisations of postvocalic /l/ in place of conservative palatalised articulations (e.g. BV [ˈtæɫe] Tele(graph)); the collapse of the /hw/ : /w/ distinction under [w] (so that whine = wine, which = witch); the articulation of conservative medial and final [x] or [h] as [k] (so that lough = lock).[20]

Footnotes to Chapter One

1. The suprasegmental characteristics of northern HE warrant a detailed study in their own right (which I do not attempt here), since the dialects in question are strikingly different from most other types of English in this area of phonology. In Belfast Vernacular, for example, attitudinally unmarked statements typically have a rising nuclear tone rather than the more usual falling pattern (see Jarman & Cruttenden 1976).

2. For detailed accounts of the Plantation of Ulster see Hill (1873) and Braidwood (1964). The latter provides useful information on the dialect backgrounds of English and Scots planters.

3. The area in which US is spoken has been defined by Gregg (1963, 1972) who refers to the dialect as 'Scotch-Irish'.

4. 'Central Marginal Ulster English' is the term Brendan Adams gives to a transitional dialect between US and MUE which is spoken in parts of Co. Derry and north Tyrone (personal communication). The only attempts at drawing a linguistic boundary within HE exclusively on the basis of vowel-length differences have been by Tipping & Adams (1966) and O'Prey (1976) who trace an isogloss in southeast Ulster between SUE phonemically short /ɛ/ (bed, bet, etc.) and MUE positionally long /ɛ/.

5. Items with /ʉ/ followed by word-final /l/ are absent from CUS due to the Scots vocalisation of /l/ in this and other environments.

6. Aitken points out that in most dialects the reflex of ESc /oi/ remains long in all stressed contexts, thus 'opting out' of the Scottish Vowel Length Rule (1981: 149). However, in some dialects an overlong allophone is to be found before /r/ or /ər/, e.g. Moir, foyer.

7. Murray, Wettstein and Zai all mention sporadic occurrences of a fully lowered first mora in diphthongised ESc /i:/ reflexes in the environment of a following voiced fricative. All of them ascribe this irregularity to borrowing from central Scots or RP. For example, we find: [fɑiv] five alongside 'older' [fe̜iv] (Murray 1873: 115); [prɒez] prize (Wettstein 1942: 42); [sɑez] size alongside regular [drɛ̈iv] drive (Zai 1942: 81, 86).

8. SUS shares with Scottish English minimal pairs involving the past tense marker /-d/, e.g. tide vs tied, greed vs agreed, brood vs brewed. As far as I know, SUS is alone among Scots dialects in having minimal pairs involving the possessive pronoun suffix /-n/, e.g. mine (n) vs mine (poss.) (also [ðɑen] thine vs [fəin] fine). Since US /o:/ does not participate in the Aitken's Law length conditions, US does not have minimal pairs such as [rod] road vs [ro:d] rowed which occur in Scottish English.

9. The problematic nature of merger-reversal stems from the difficulties associated with learning to split large lexical sets accurately. A

particular split may correspond to a historical distinction that is preserved in a dialect which is a model for emulation, but from the speaker's point of view it amounts to a completely arbitrary division. Evidence of the difficulties arising from this arbitrariness comes from frequent hypercorrective allocations of individual lexemes into 'wrong' sets. I take this problem up in more detail in 4.2.

10. These developments occurred in the southern English source dialects of SUE and southern HE.

11. One speaker from each of three age-groups was questioned in each of the localities covered by the Tape-Recorded Survey of Hiberno-English. Only the responses of speakers from the middle group are given in Tab 1-1. See Barry 1981c for details on the selection of respondents in the Survey.

12. Although the dialects at points 60, 65, 66 in Tab 1-1 have typically MUE conditioned length in the /ʉ/ items listed, they are included in this discussion of SUE, because in other respects they fall into the category of SUE. For example, they have phonemically short /ɛ/ and phonemically long /i:/, vowels that have phonetically conditioned quantity in MUE.

13. The item buzz was originally included in the Tape-Recorded Survey of Hiberno-English to test the extent of the incidence of /ɩ/ (or an equivalent vowel) as opposed to /ɑ/ or /ɔ̈/ in this word (see Adams, Barry & Tilling 1976). No responses with /ɩ/ were collected from speakers in the areas listed in Tab 1-1.

14. Leap with /ɛ/ in BV presumably derives from the English rather than Scots source dialects of MUE. The equivalent Scots form contains /əʉ/ < Old Norse /ou/. Loup (Old Norse hloupa) is usual in CUS.

15. Many dialects in the north of England have a three-way distinction among the reflexes of ME /a/ : /a/ in bad, mass, pass, /a:/ in card and /ɑ:/ in calm.

16. Only one American English distribution pattern of ME /a/ reflexes is included in (24), that which is the most general in the USA and Canada (see Kurath & McDavid 1961: 5). The pattern is complicated by the involvement of ME /o/ and /au/ in mergers with ME /a/ in some dialects. Some United States varieties have distribution patterns in this vocalic subsystem that are similar to the southern English one given in (24). Almost identical to the RP pattern is that of the nonrhotic eastern New England dialect which has 'broad a' (i.e. [a:] or [ä:]) in many items that have /ɑ:/ in RP but /æ/ in most other North American dialects.

17. (25) gives a much simplified picture of the distribution of ME /o/ and /au/ in various dialects. The pattern is complicated by mergers with other vowels and by lexical conditioning. In

some north American dialects, the vowel in cod merges with that in car, father, calm, e.g. New York City, upstate New York, eastern Pennsylvania and the south Midlands (see Kurath & McDavid 1961: 5). Lass discusses a three-way lexical split of ME /o/ in the nonrhotic dialect of New York City: [ɔə] in soft, loss, song, merging with the vowel in caught, course; [ɑə] in cod, cog, Tom, identical to the vowel in cart; and [ä] in pot, top, con (1976: ch 5). The effects of lexical diffusion on the spread of the ME /o/ - /au/ merger in American English are discussed by Labov, Yaeger & Steiner (1972: 172ff.). Even where gross phonetic conditioning is in evidence, finer lexical dimensions to the merger can often be detected. For example, following /ŋ/ favours the lengthening of ME /o/ and its merger with ME /au/. In New York City, however, long, wrong, song, strong have the same vowel as sauce, while thong, King Kong, ping-pong have 'normal' [ä] < ME /o/ (Labov et al 1972: 175).

18. In some HE dialects, /tj/ and /kj/ have merged under a palatal plosive, e.g. [cʉb] tube, cube, [ˈkɹɪscən] Christian.

19. The MUE /a/ : /ɑ/ : /ɔ:/ series is usually neutralised under [ɑ] before /l/ followed by a voiceless consonant, e.g. [fɑlt] fault, [sɑlt] salt.

20. The loss of the /x/ : /k/ contrast in some progressive HE varieties is supported by pun and spelling evidence. In Belfast, for example, the name of a shop 'Finnicky Fashions' is a pun on the name of the area in which the shop is situated. The place-name Finaghy is pronounced [ˈfɛ̈nəhe] or [ˈfɛ̈nəxe] in conservative speech but [ˈfɛ̈nəke] in innovating BV.

Chapter Two

CLIPPING, STRENGTH AND THE NORTHERN DRAWL

In this chapter, I examine some of the most important principles that underlie the notion of phonological strength and attempt to apply them to the treatment of vowel length in BV. Such an application enables us to formulate a more unified statement of length distribution than would otherwise be possible using more traditional rule and feature formalisms. The unified account is achieved by devising a single vowel-length rule whose expansion is controlled by two higher-order phonological hierarchies. One hierarchy expresses the order of input elements to the length rule; the other expresses the ranking of environmental constraints on the rule's application. I go on to claim that the ordering of phonological elements on the two hierarchies is governed by phonetic factors, specifically certain articulatory and aerodynamic constraints that are inherent in speech production.

2.1 Phonological strength hierarchies

The pronunciation of northern HE is sometimes described as being 'clipped' and 'drawled'. At first sight this seems to be a paradox, since 'clipped' often implies shortening and 'drawled' is usually understood to imply lengthening. In fact as descriptions of vowel length in Scots and its derivative dialects, the terms are particularly apt, at least from the viewpoint of someone who speaks an English or English-derived variety (including southern HE). Some vowels which are long in English dialects have been shortened in northern HE and its ancestors. Conversely, some vowels which are short in English varieties correspond to long vowels in northern HE and related dialects. For example, the nuclei of feed, food are long in southern HE (as in RP) but short in most northern types. On the other hand, the nuclei of bed, pod are short in southern HE but long in US and MUE.

As we saw in the last chapter, the distribution of vowel quantity in northern HE reflects certain historical lengthening and shortening processes, the most important of which is Aitken's Law. In this chapter (with due apologies to James Sledd for the title - see Sledd 1966), I examine some of the diachronic and synchronic aspects of clipping and the northern drawl. I seek to show that the historical diffusion and present-day distribution of vowel-length differences in BV can be most insightfully described in terms of phonological hierarchies.

Many recent proposals for hierarchical models in phonology incorporate some notion of <u>phonological strength</u>. The concept has many different interpretations, but as a starting point in this discussion we may take the following as a working definition (Vennemann quoted in Hyman 1975: 165):

> A segment X is said to be weaker than segment Y if Y goes through an X stage on its way to zero.

Despite widely divergent interpretations of phonological strength, it is possible to recognise several points that are common to all applications of the concept. One of these is the claim that segment-types can be arranged on phonological hierarchies or scales on the basis of their differential behaviour with respect to processes of strengthening or weakening. Such scales generally take the following form:

(1)

$$\begin{array}{ccc} A & B & C \\ \hline 1 & 2 & 3 \end{array} \longrightarrow$$

where A, B, C represent different segment-classes and the numerals refer to phonological strength values.

The scales not only represent the relative phonological strengths of the elements arranged on them (increasing in strength from 1 to 3 in (1)) but also express implicational relations among these elements. Given an arrangement such as (1), any weakening process will affect weak segments before strong ones and any strengthening process will affect strong elements before weak ones. The relations that hold among elements on a scale of phonological strength are thus transitive and asymmetric. For example, if S = strengthening, then $S(A) \supset S(B)$, $S(B) \supset S(C)$, $\therefore$ $S(A) \supset S(C)$; but $\sim ((S(C) \supset S(B)) \wedge (S(C) \supset S(A)))$.

The hierarchies set up in this way are, according to most interpretations, of universal validity. As such they are claimed to be explanatory (less ambitiously, predictive or just insightful), in that they represent higher-order conditions under which phonological rules in individual languages can be subsumed. The scales express meta-conditions which define the concept of natural phonological rule. Most writers on the subject (but by no means all - see 2.2) acknowledge the danger of circularity in applying the concept. Strength scales are initially formulated on the basis of observation statements made about the differential phonological behaviour of various segment-types, about their distributional characteristics or susceptibility to particular processes. Subsequently to cite the same scales as explanations of the observed distributions would obviously amount to committing the naming fallacy. Unfortunately, as we shall see (2.2), this is exactly what at least one phonologist has done. The position I adopt here is that, for the notion of phonological strength to have any validity, it must be shown to be independently motivated. That is, scales of phonological strength must be supported by external evidence (presumably physiological or psychological in nature) which provides us with an understanding of why the observed distributions are as they are. Otherwise the concept is meaningless. On this point, Givón (1979: 7-8):

> To the extent that a linguistic theory makes no reference to the natural explanatory parameters of language, it remains perforce a higher level of formalism. Explanations emanating from such a 'theory' remain, perforce, formalism-internal, and are in principle, then, not explanations at all but rather <u>tautologies</u>.

In surveying the literature on phonological strength, I wish to focus on two aspects of the notion that have been approached in quite different ways by writers on the subject: (i) the sort of distributional bases upon which scales of phonological strength have initially been constructed, and (ii) the nature of the relationship between the scales and phonetic reality.

Broadly speaking, phonological elements have been arranged on hierarchies according to three criteria: (i) their phonotactic characteristics, (ii) their susceptibility to particular phonological processes, and (iii) their ability to condition phonological processes. The earliest attempts at constructing phonological hierarchies on phonotactic criteria were those of Jespersen (1912) and Saussure (1974) who propose rankings of segments which reflect the different ways sounds group themselves in syllables according to their audibility or articulatory aperture. Sigurd (1955) establishes a rank order of consonants on the basis of their adherence relations to vowel-nuclei within Swedish syllables. Vennemann (1972a) and Hooper (1976: ch 10, 11) attempt to develop an explanation of phonotactic constraints by correlating the strength of a consonant with the strength of its position within a syllable. Syllabification rules and syllable structure processes, they claim, operate in accordance with general conditions that are expressed in phonological strength hierarchies. Árnason applies Hooper's and Vennemann's scales to the problem of quantity and stress in modern Icelandic (1980: 38ff). He finds examples of assimilatory syllable structure processes than run counter to these scales and consequently prefers to restrict their use to the description of the phonotactic properties of segments.

Another application of phonological strength has been to rank segments according to their propensity to undergo particular phonological processes, specifically those which can be characterised in terms of strengthening or weakening. In the majority of cases, strength scales have been established to account for diachronic processes: strengthening and lenition of obstruents in Old English (Lass 1971; Lass & Anderson 1975: ch 5); vocalisation and vowel quantity changes in Scots (Vaiana 1972; Vaiana Taylor 1974); and obstruent deletion in Germanic and Bantu (Guile 1974). By far the most detailed treatment of historical changes in terms of phonological strength is that of Foley (all references). Because of the detailed nature of Foley's work and the explicit claims he makes about scales of phonological strength, I propose to discuss his model at some length (2.2). Several studies have applied the strength scale model to synchronic processes. Zwicky (1972) sets up a phonological hierarchy on the basis of processes operating in allegro speech in English. Hankamer & Aissen (1974) devise a 'consonantal dominance hierarchy' within which to treat assimilation phenomena in Pali. Schaefer (1981) adapts Hooper's and Foley's proposals for strength scales to deal with morphophonemic alternations in Setswana.

Several phonologists who employ strength hierarchies in the ranking of segment-types have extended the notion to the ranking of phonological environments. According to their place on a positional strength scale, different environments can be characterised as relatively weak or relatively strong on the basis of the degree to which they condition weakening or strengthening processes. In Hooper 1976, for example, segment-types which are arranged on a hierarchy according to their phonotactic characteristics order themselves in the same fashion with respect to their ability to induce assimilation in contiguous segments. Lass & Anderson extend their model of phonological strength, which they construct initially on the basis of strengthening and weakening in a single environment, by introducing the concept of preferred and protected environments (1975: 159ff). It is possible to identify preferential environments for weakening and strengthening. For example, intervocalic position is typically a weak context; initial position is typically strong. The strength of a segment is accordingly defined as its ability to resist a preferred lenition in a given context (Lass & Anderson 1975: 162-163). Furthermore, a relatively strong segment may protect a relatively weaker contiguous segment from undergoing lenition in an environment that otherwise favours it.

Positional hierarchies have also been established on purely distributional criteria without reference to phonological processes. Brasington (1982), for example, uses frequency counts of vocabulary and running texts in a number of unrelated languages to establish a ranking of structural positions which reflects the degree to which the positions favour the occurrence of one segment-type over another.

Positional strength hierarchies have much in common with the models of implicational scaling and weighting of environments that have been developed in sociolinguistics. Research within the variable rule paradigm has revealed that the variable linguistic constraints which operate on phonological (and other) processes may be hierarchically ordered, such that a given process affects certain environments more extensively than others. Environmental weightings of this nature are reported for example in word-final stop deletion (Labov 1972b: ch 1; Wolfram 1969; Fasold 1972; Guy 1980; Neu 1980) and the raising of so-called tense /æ/ in New York City (Labov 1966; Labov, Yaeger &

Steiner 1972).

Variation models which incorporate some means of representing implicational relations among isolects also employ some notion of the hierarchical ordering of environments (e.g. De Camp 1971; Bickerton 1975). One example is Bickerton's (1971) treatment of the infinitive particle in Guyanese Creole, where the selection of either basilectal fi/fu or acrolectal tu is governed by environmental constraints (specifically defined in terms of the semantic characteristics of the preceding verb) which can be arranged on an implicational hierarchy. The weighting of environments according to the extent to which they condition a particular change is also a feature of Bailey's wave model (1973: ch 4).

The main difference between the positional strength hierarchies of phonological theory and the ranking of environments that is part of the methodology of certain kinds of sociolinguistic research lies in the sorts of correlations linguists have sought to establish between these theoretical constructs on the one hand and particular external facts on the other. While sociolinguistics has been primarily concerned with linking variation in linguistic structure to differences in social structure, it has in general neglected the sort of asocial factors (presumably phonetic in the case of phonological variation) that may determine the dimensions along which linguistic variation takes place. This is precisely the kind of question that phonologists using some form of strength hierarchy model have set out to answer.

Two philosophically distinct positions have been adopted on the question of the relation between phonological strength and phonetic reality. At one extreme, there are those who argue that, if strength hierarchies are to have any theoretical status at all, they must be shown to be independently motivated by well-defined phonetic facts. At the other extreme are those who hold that strength scales represent a 'phonological reality' whose relationship to their physical manifestation is arbitrary and of no interest to the phonologist. The most extravagant exponent of the latter view is Foley. A similar, if slightly less extreme line is taken by Vennemann: in attempting to explain certain clustering phenomena in Icelandic he sets up a scale of relative strength on purely phonological grounds 'without recourse to phonetic speculation' (1972a: 6).

Most other phonologists profess a more concrete view of phonological strength, although this has more often than not amounted to little more than paying lip-service to the phonetic connection, with the result that their proposals differ only superficially from Foley's. Thus, having in the first place established particular strength hierarchies on purely distributional grounds, many phonologists have then gone on to make vague noises about 'energicity' (Sigurd 1955: 20) or 'sonority' (Zwicky 1972: 295; Hooper 1976: 197) without elaborating on these terms. Hankamer & Aissen, having proposed 'sonority' as a multivalued classificatory feature, admit to not knowing 'whether it is possible to provide a definition for [it] in acoustic or articulatory terms' (1974: 137).

There have been relatively few genuine attempts to define how phonological strength might be interpreted phonetically. Guile (1974) is exceptional in claiming that the scale in terms of which he seeks to explain particular examples of obstruent deletion corresponds to a single acoustic dimension, specifically degree of overall amplitude which he arrives at by oscillographic measurement. However, the degree to which any significant generalisations can be based on Guile's findings is not clear, since, as he himself points out, they are simply in the nature of a pilot study. Moreover it would be naïve to suppose that phonological strength must necessarily enter into a simple correlation with some unified, singly identifiable phonetic property. Vennemann & Ladefoged (1973) propose universal interpretative conventions that map cover-terms such as strength, which they argue are motivated on higher-order phonological grounds, on to multiple phonetic features.

By far the most detailed account of how a particular strength hierarchy might correlate with identifiable phonetic parameters is that of Lass & Anderson (1975: ch 5), who conceive of strengthening and weakening in expressly articulatory terms. They construct a consonant strength hierarchy which reflects the most statistically probable or natural trajectories that segments follow under lenition or strengthening. The phonetic basis of their model is made quite explicit:

> It seems reasonable to assume that statistical frequencies will have some kind of (nonstatistical) correlates...that will at least help to explain why the observed distributions hold. We suspect that these facts will always in fact, be strictly phonetic (in a broad sense of that term). That is, they will ultimately have an articulatory or acoustic basis... It does not seem obvious that there are other kinds of 'phonological generalisations' (1975: 149).

Articulatory lenition, Lass & Anderson suggest, is manifested as 'sonorisation' (voicing resulting in a decrease in resistance to transglottal airflow) and/or 'opening' (a lessening in the degree of closure between the active and passive articulators).

The phonological scales in terms of which I propose to treat certain vowel quantity changes in BV are constructed in the same phonetically responsible spirit that characterises Lass & Anderson's model. That is not to say that I necessarily reject out of hand arguments for the 'phonological reality' of strength hierarchies. After all, phonologists have long accepted such concepts as segment and syllable without necessarily being able to define these accurately (or at all) in purely phonetic terms. In fact I wish now to give careful consideration to one particular model of phonological strength in which the notion of a purely phonological reality is given a central role, allegedly to the exclusion of phonetic considerations.

2.2 Foley's scales of phonological strength

Foley's 'theoretical phonology' has been developed in a series of articles (1970a, 1970b, 1971, 1972a, 1972b, 1973, 1981) and appears in its most detailed form in Foundations of theoretical phonology (1977) (originally circulated in manuscript form as 'Systematic morphophonology'). Foley attacks transformational generative phonologists on the grounds that they are centrally concerned with notation to the exclusion of enlightened interpretation and that in their preoccupation with manifest rather than theoretical elements they are guilty of phonetic reductionism (hence his term 'transformational phonetics') (1977: ch 1, 2). The latter criticism stems from Foley's contention that phonological elements are 'properly defined not in terms of their acoustic or articulatory properties but in terms of the rules they participate in' (1977: 6).

The basic elements in Foley's theory are therefore defined in purely system-internal terms without regard to how they manifest themselves phonetically. The abstract relations among phonological elements are determined by the observed propensity of the elements to undergo particular phonological processes. The manner in which the basic elements are affected by phonological rules has nothing to do with the phonetic realisation these elements receive at a superficial level but is a function of their relative phonological strength as defined by one of several abstract hierarchies. Although the order of basic elements on the scales of phonological strength is universally valid, according to Foley, the phonetic realisation of individual elements may vary considerably, a claim that is expressed as the following principle (1977: 49):

(2)

> Particular consistent principle.
> Though the phonetic manifestation of phonological elements may vary from language to language, it does not vary within any particular language.

I wish to concentrate on four of Foley's strength scales (he postulates at least seven), specifically those which can serve as points of reference for the hierarchies in terms of which I propose to deal with BV vowel quantity changes. These are, together with their abstract strength labels (Foley 1977: ch 3):

(3)

α - strength

k	t	p
1	2	3

(4)

β - strength

ð	d	t	tt
1	2	3	4

(5) ρ - strength

t	s	n	l	j	e
1	2	3	4	5	6

(6)

```
ηω - strength
          u       o
i
          e       a
 ———————————————————>
1         2       3
```

It should be borne in mind that the elements represented in these scales in traditional phonetic notation are abstract entities whose phonetic manifestation is not relevant at the phonological level. The abstract relation α-strength (3) expresses the fact that, under lenition, phonological elements which manifest themselves as the class of velars (here represented by k) are weaker than those that appear as dentals (t) which in turn are weaker than elements that appear as labials (p). α-strength thus corresponds (arbitrarily in Foley's view) to the phonetic specification place of articulation. The basic elements on the β-strength scale (4) typically correspond to the phonetic parameter of manner of articulation (dentals are here representative of all place of articulation types). While α-strength is established on the basis of the order in which phonological elements are affected by weakening or strengthening, β-strength expresses the trajectory each element on the α-scale follows when it undergoes these processes. The scale of ρ-strength (5) corresponds to the traditional notion of resonance, according to Foley, a defining characteristic of which is propensity to vocalise. (Again the symbols here represent classes of basic elements: n represents nasals, e vowels, etc.). The scale of ηω-strength (6) is in fact a combination of two parameters, the ω-scale (corresponding to vowel backness) and the η-scale (corresponding to vowel height).

The transitive and asymmetric nature of the relations expressed in Foley's strength scales is reflected in the following principle which governs the expansion of universal rule schemata (1977: 107):

(7)

Inertia development principle

(1) Strong elements strengthen first and most extensively and preferentially in strong environments, and (2) weak elements weaken first and most extensively and preferentially in weak environments.

Foley classifies strong and weak environments as follows:

(8)

Strong	Weak
initial	final
postnasal	intervocalic
post-tonic	postatonic

I wish to concentrate on two aspects of Foley's theory which are relevant to the later discussion of vowel quantity developments in BV. Firstly and briefly, we need to beware of the potential circularity inherent in Foley's arguments. Secondly, I wish to question the postulated universal validity (and hence explanatory value) of Foley's strength scales by referring to a number of problematical cases of weakening. To the extent that these cases represent counterexamples to Foley's scales they should sound a note of caution to any phonologist (myself included) who attempts to apply this or any similar model of phonological strength.

I don't think it's an undue caricature of Foley's line of argument to summarise the steps he follows in setting up his model of phonological strength thus:

(i) Formulate a statement of the observed distributions associated with a particular phonological process as it preferentially affects different segment-types in a number of languages.

(ii) Arrange the segment-types on a hierarchy on the basis of their differential behaviour as noted in (i).

(iii) Elevate the hierarchy set up in (ii) to the status of a higher-order theoretical construct associated with phonological strength, such that it explains the observed distributions in (i).

I don't think there is any way in which this argument in its present shape can be interpreted as anything other than an instance of the fallacy of affirming the consequent (i.e. $p \supset q$; q ; $\therefore p$). The only way the argument could be rescued from circularity would be if there were some a priori reason for accepting the strength hierarchy as an explanatory device under which the observed distributions could be subsumed. This might for example involve appealing to some previously defined phonetic basis for the notion of strength (as in Lass & Anderson's formulation of the concept - see 2.1). But this is precisely the sort of 'reductionist' argument that Foley rejects.

The explanatory power that Foley ascribes to his model depends to a large extent on the universal validity of his scales of phonological strength. The extent to which we can invest confidence in the universality of the scales is of course dependent on their testability. There is no doubt that Foley is correct in claiming that the statements formulated within his theory are sufficiently explicit for them to be subject to empirical test (1972b: 459; 1977: 31). For example, Foley is quite clear in his claim that velars are the weakest obstruents. That is, any weakening or deletion process should affect velars before it does either labials or dentals (in accordance with the order of elements on the α-scale (3)). On the face of it then, a case of either a labial or a dental leniting before a velar would constitute counter-evidence to the α-scale. However, in reply to two articles which directly criticise his model (Cohen 1971; Smith 1981), Foley explicitly denies that lack of fit between his theory and the data is a problem: 'failure of agreement between theory and data does not necessarily mean the theory is wrong; the data may be wrong' (1972b: 460; see also 1981 (601) for similar sentiments). Now while it may be true that the reliability of a certain amount of the evidence adduced by linguists to support or disconfirm particular hypotheses is sometimes questionable, it is nevertheless also the case that there is a large body of linguistic material which has been assembled over the years by reputable scholars and in which we can place confidence - at least as much confidence as in the data upon which Foley has built his own model. Suppose this corpus of material is found to include a number of examples than run counter to the predictions made by Foley's strength scales. This might not cause us to abandon the model as a convenient working hypothesis (at least for the time being), but it would of course certainly refute its alleged universality.

I find Foley's contention that his theory of phonological strength is at once subject to empirical test and immune to falsification by counterexample inconsistent and incomprehensible. I assume I am in respectable company if I disregard Foley's claims about data immunity and adopt a falsificationist position vis à vis his model of phonological strength. In fact I think there is enough evidence, some of which I present now, to refute the claimed universality of Foley's strength scales.

Foley himself implicitly acknowledges that his scale of α-strength is not universally valid. In most of his work, the order of elements on the α-scale is given as in (3), i.e. velars are weakest, labials strongest, and dentals of intermediate strength (1970a: 89; 1971: 379; 1972a: 97; 1977: 28; 1981: 600). Foley 1973, however, includes a revised version of the α-scale, in which the relative positions of labials and dentals are reversed:

(9)

α - strength revised

k	p	t
1	2	3 →

This is the order of elements Foley proposes in order to account for certain processes in Germanic which he expresses in terms of assimilation of phonological strength. There is evidence that dentals are stronger than either velars or labials in languages other than those discussed in Foley 1973, e.g. Fula (Skousen 1972a), Finnish (Skousen 1972b) and Icelandic (Vennemann 1972a). Lass & Anderson cite evidence from Germanic and Uralic which they interpret as indicating that strength hierarchies are not universal but language- and time-specific (1975: 184ff). That is, there are classes of segments that may be characteristically weak in one language at one particular time but strong in another language or in the same language at another time. For the sake of argument let us assume for the time being that the revised α-scale (9) is valid for Germanic. I wish to present several cases of weakening in Germanic that are counterexamples to it.

In modern English dialects, dentals are susceptible to a number of processes which include tapping, spirantisation, glottalisation and affrication. In traditional terms, most of these processes would be regarded as involving articulatory lenition. However, since dentals are the strongest element on the Germanic α-scale (9), Foley is forced to argue on the basis of the inertia development principle (7) that they are cases of strengthening.

A process that is typical of many English dialects is the change of plosive /t/ to a tap or an approximant in intervocalic position. Thus we find examples of voiced or voiceless alveolar taps in American

English, to a certain extent in RP, and, as the following examples indicate, in HE:

(10)

[ˈlɛɾəɹ] or [ˈlɛɾ̥əɹ] letter, let her

[ˈsɪɾɪ] or [ˈsɪɾ̥ɪ] city

A similar process changes intervocalic /t/ to an alveolar approximant in some dialects, e.g. morpheme-finally in some north-of-England types:

(11)

[pɒɹɒn] put on

[gɛɹɒf] get off

The same change also applied sporadically morpheme-internally, cf. porride < pottage; southern Indiana [ˈsæɹədɛɪ] Saturday.[1] Cohen (1971) briefly mentions the tapping of /t/ in American English as an example of weakening that runs counter to Foley's α-scale. In his reply, Foley (1972b) argues that this is in fact a case of strengthening, since dentals are the strongest elements on the scale and a similar process (presumably intervocalic voicing) does not affect labials or velars in the dialects in question.

To support his case for strengthening, Foley invokes the following principle (surely one of the most extraordinary blocking devices in linguistic theory) which comes into play whenever an element that is to be strengthened is already the strongest element on a given scale:

(12)

Modular depotentiation principle
Maintaining the closure property (that operations on elements in a set yield an element in that set), the strengthened strongest element undergoes modular depotentiation, appearing phonetically as the weakest element (1977: 123).

The modular depotentiation of dentals in the tapping process, Foley claims, occurs on the β-scale (4), which is restated here in the form given in Foley 1972b:

(13)

β - strength

ð	d	t	t^+
1	2	3	4

(arrow → increasing strength)

The varying realisations of the elements on this scale are governed by the particular consistent principle (2). The 'potentiated' element $\underline{t}^{+}$ is manifested variously as a geminate stop, an affricate, or, through modular depotentiation, as $\underline{ð}$. The last appears diversely as a voiced fricative or a tap. The intervocalic tapping of /t/ therefore involves potentiation of $\underline{t}$ to $\underline{t}^{+}$ and its manifestation through modular depotentiation as the weakest element on the β-scale.

I find this treatment circular and incoherent, but let us accept it for the moment for the sake of argument. If the intervocalic tapping of /t/ is a case of strengthening, it still falls foul of an important principle formulated by Foley himself. According to the inertial development principle (7), a strengthening process applies preferentially in strong environments before weak ones. Since the intervocalic position in which the tapping of /t/ occurs is characterised by Foley as a weak environment (see (8)), the process must be shown to have applied first in relatively stronger environments, i.e. in initial, postnasal and posttonic positions. There is no evidence to show that this has happened. As far as I know, there are no dialects of English with initially tapped /t/, a most unlikely change anyway. It is much more natural, as well as economical (avoiding the clumsy device of modular depotentiation), to recognise the changes /t/ —> {ɾ̥, ɾ, ɹ} intervocalically as phonetic lenition in a typically weak position.

Neither can Foley's position be saved by arguing that the strengthening of $\underline{t}$ in the tapping process takes place along the ρ-scale (5), rather than along the β-scale, i.e. as an increase in resonance. The problem with this attempt at a solution is that, to obey the inertia development principle, /t/ would have to be shown to have passed through the intervening stages on the ρ-scale on its way from $\underline{t}$ to $\underline{l}$ or $\underline{j}$ (liquid or approximant). As far as I know, there is no evidence that /t/ has developed to say a nasal intervocalically in any dialect of English. (In fact, nasals typically stand outside such strengthening or weakening processes.)

In southern HE, /t/ is spirantised in word-final position, a process that would in phonetic terms be regarded as lenition (for the details, see 1.5). Since the spirantisation affects t, the strongest element on the α-scale, and not p or k, Foley would be forced into describing the process as strengthening. As in the previous example, the problem is that the 'strengthening' applies preferentially in a weak position (see (8)) in contravention of the inertia development principle.

In MUE, /ð/, but not /v, z, ʒ/, is elided intervocalically (see 1.5), e.g. [ˈmɔ̈ːəɹ] mother, but [ˈɛ̈vəɹ] ever, [ˈɹɪəzəɹ] razor, [ˈmæʒəɹ] measure. Since dentals are the strongest elements on the α-scale, this elision would have to be treated as strengthening (presumably on the β-scale). Once again the problem is that intervocalic position is a typically weakening environment. Neither can the modular depotentiation principle be invoked here, for since ð is the weakest element on the β-scale any strengthening process it might undergo would produce the stronger elements d or t. There is no evidence that /ð/ in MUE ever passed through these stages on its way to zero. In fact, a sequence of changes such as [ð] > [d] > [t] > ∅ intervocalically is extremely unlikely in any language.

In many English dialects, voiceless stops and affricates in certain positions are accompanied by a glottal stop, In some of these dialects, glottalised /t/, but not /p/ or /k/, has lost its oral closure so that it is realised as [ʔ]. In Scots (including US), for example, we find a glottal stop allophone of /t/ finally, intervocalically and before syllabic sonorants, but an alveolar plosive elsewhere (examples from CUS):

(14)

(a)	[tɑːp]	tap	(b)	[pɔːʔ]	pot
	[stæ̈ŋ]	sting		[ˈbʌʔəɹ]	butter
				[ˈbɔːʔl̩]	bottle

Phonetically, glottalisation is a weakening process, resulting in loss of oral closure. However, Foley takes just this process to be one of the indications that dentals are the strongest elements in Germanic (1973). He discusses the glottalisation of /t/ in one type of English where the process has only applied before syllabic /l/ or /n/. Since this is a strong environment according to Foley, he regards the process as one of strengthening by modular depotentiation. Thus in this particular type of English we find [ʔ] in the items in (15a) but not in (15b) (Foley 1973: 55).

(15)

(a)		(b)	
	fountain		beckon
	mountain		pickle
	Latin		nipple
	bottle		weapon
	kitten		
	mitten		

Any expansion of the strengthening process whereby /t/ becomes [ʔ] must, according to the inertial development principle, affect other strong environments (e.g. word-initial position) before it applies to weak positions (e.g. finally). This is clearly not what has happened in Scots and other English dialects where glottalisation has affected the weak environments illustrated in (14b) but not strong initial position (14a).

The four processes I have just discussed, the tapping, spirantisation and glottalisation of /t/ and the elision of /ð/ in English dialects, are all counterexamples to Foley's contention that dentals are the strongest phonological elements in Germanic (as expressed in the α-scale (9)). A phonetically defined model of phonological strength, such as that proposed by Lass & Anderson (1975), can handle the processes affecting apical obstruents in English quite naturally in terms of weakening. The changes can be described economically as opening ([ð] > ∅; [ʔt] > [ʔ]) and sonorisation ([t] > [ɾ]; [t] > [ɹ]). If anything, the processes in question indicate that in present-day English it is dentals that constitute the weakest class of obstruents in relation to labials and velars.

A further counterexample to Foley's α-scale for Germanic is provided by modern Bavarian German, where labials can be shown to be the weakest class of obstruents. One process which Foley takes as the paradigm example of weakening is the intervocalic spirantisation of plosives. Given the order of elements on the α-scale (in its most cited form (3)), Foley states (1977: 31) that no language will have a rule:

(16)

d —> ð / V _ V

or

(17)

b —> β / V _ V

unless it also has a rule:

(18)

$g \longrightarrow \gamma \,/\, V \_ V$

This claim, Foley says, 'is logically falsifiable simply by finding one genuine counterexample of a language which does have rule (16) or (17) but not (18) '[reference numbers mine: JH] (1977: 31). Thus, for example, north German has (18) but not (16) or (17) (Foley 1970a: 88):

(19)

[ˈza:ɣən]	<u>sagen</u>	[ˈre:dən]	<u>reden</u>
		[ˈbe:bən]	<u>beben</u>

Standard Danish has (18) and (16), but not (17) ('at least until quite recently' (Foley 1970a: 88)):

(20)

[ˈkaɣə]	<u>kage</u>	[ˈkøbə]	<u>kobe</u>
[ˈbiðə]	<u>bide</u>		

A 'genuine counterexample' to Foley's claim comes from Viennese German (an east central Bavarian dialect) which has rule (17) but neither (18) nor (16):

(21)

[ˈliəβʌ]	<u>lieber</u>	[ˈmɔ:gʌ]	<u>mager</u>
		[ˈfe:dʌ]	<u>Feder</u>

Note that this example contradicts the α-scale both in its most cited form (3) and in its restricted Germanic version (9), since in both scales it is velars that are supposedly the weakest elements.[2]

Finally in this section, I wish to examine how Foley attempts to defuse recent criticism of his strength scale model. Smith (1981) cites examples from modern Danish dialects which are similar to the cases I have just discussed, in that they constitute counterevidence to Foley's α-scale. The examples involve a process in which Danish final /b, d, g/ develop into fricatives, approximants or zero. Smith takes this to be strengthening along Foley's ρ-scale (5) which applies preferentially to elements on the α-scale. Smith shows that in certain Danish dialects the order in which and the extent to which elements are affected by the changes in question do not correspond to the predictions made by the α-scale in either its general (3) or restricted (9) form. Foley (1981) counters by claiming that Smith misunderstands his theory.

The changes Smith discusses involve not strengthening on the ρ-scale but weakening on the β-scale (4). However, even when we reinterpret Smith's data in terms of weakening, I still think they can be shown to contradict Foley's α-scale.

Given a weakening process which preferentially affects /d, g, b/, according to the α-scale we may find dialects with one of the following patterns (where W = some weakened realisation of a particular segment, e.g. Wd = {ð, ɹ, ø}):

(22)

(a)	Wg	d	b
(b)	Wg	Wd	b
(c)	Wg	Wd	Wb

but not

(23)

(a)	g	Wd	b
(b)	g	Wd	Wb
(c)	g	d	Wb

Smith's data include clear examples of dialects with patterns (23a) and (23c).

Despite Smith's alleged misunderstanding of the kind of process involved in the Danish example and despite the apparent ease with which Foley can slip from one version of his α-scale to another (i.e. from (3) to (9)), these data provide clear counterevidence to the universality of Foley's model. I don't think counterexamples mean that we necessarily have to throw the baby out with the bathwater by rejecting Foley's theory outright. After all, for every counterexample to Foley's model there appear to be numerous examples that support it (amply documented in Foley 1977). What the counterevidence should do, however, is to make us treat with caution or scepticism any claims made about the universality of phonological strength hierarchies.

2.3 Do strength hierarchies explain anything?

Having established that at least certain strength hierarchies are not universally valid, we immediately run into the question of their ability to explain anything. I don't propose to go into this problem in too much depth, but for the time being it is as well to bear in mind that 100% predictiveness is a necessary (but not sufficient) prerequisite for strict (deductive-nomological) explanation. Neither do I propose to argue that the explanatory power of the strength hierarchy model might be salvaged by adjusting its claims so that they are not asserted to be nomically necessary, but rather highly probable. (See Lass 1980a (20ff) for a discussion of the problematical status of such 'probabilistic explanations' in linguistics.) Nevertheless, while the predictions made by a particular strength hierarchy may not hold for individual cases, they can be made to hold with high frequency over an aggregate of cases. While this doesn't yield an explanation in a strict deductive-nomological sense, the construction of a particular strength hierarchy can be the first step towards gaining a better understanding of the observed distributions.

Initially a strength hierarchy is established by extrapolating from observed statistical distributions, and at this stage it is nothing more than a taxonomic observation statement. But the real value of a strength hierarchy lies in the fact that, once established, it provides the starting point for an investigation of possible empirical factors that determine the pattern of observed distributions. The amount of insight such a model provides is proportionate to the fruitfulness of the empirical investigations.

The phonological scales I construct in the next sections for treating vowel quantity changes in BV are simple taxonomies. In a later section (2.6), I then suggest certain identifiable phonetic facts that can plausibly be regarded as determining the order of elements on the hierarchies.

One criticism of classical generative phonology has been that it is often not possible, given traditional feature notation and rule formalisms, to express the functional relationships that are intuitively recognised as holding among certain rules (e.g. Lass 1969, Kisseberth 1970, Lakoff 1972). Several phonologists have acknowledged the usefulness of the strength hierarchy model for capturing such rule 'conspiracies' (e.g. Foley 1972a, Vaiana Taylor 1974). It has been claimed that phonological rules which can be regarded as having some common motivation are derivable from larger phonological patterns. In models of phonological strength, these patterns take the form of abstract hierarchical relationships among classes of segments.

The positing of higher-order patterns from which individual phonological rules can be considered derivative raises the thorny issue of functional explanations in linguistic change. An extreme teleological view of such patterns is that they represent goals or targets towards which groups of related individual rules conspire to aim (see particularly Lass 1974 on 'linguistic orthogenesis' and Vaiana Taylor 1974).

More recently Lass has criticised goal-orientated interpretations of linguistic change in a wider discussion of the problematical status of functional arguments in historical linguistics (1980a: ch 3; see also Vincent 1978). In what follows, I make no claims that the historical developments which have given rise to the vowel length conditions of present-day BV have been directed towards some goal. Nevertheless, some kind of relationship can be considered to hold among the changes in question, and this should not go unexpressed in a description of the historical phonology of HE. With hindsight it is possible to recognise a unified effect that these changes have had on the phonology of BV, namely the large-scale loss of phonemic vowel length. The distinction I am making here between goal and effect is meant to reflect the strong reservations I have about teleological views of language change. While it may be possible to offer a post factum account of the relatedness of particular historical processes, I take Lass's point that, given the present state of our knowledge, we have no right to elevate such accounts to the status of theories about the goal-directed nature of linguistic change (1980a: ch 3).

2.4.0 BV vowel quantity and phonological hierarchies

2.4.1 Introduction. In terms of traditional generative phonology, the distribution of vowel quantity in present-day BV, as outlined in 1.4.1, might be formalised in the following way. Inherently short /ε̈, ɔ̈/ and inherently long /a:, ɔ:, ɔe/ would presumably be represented lexically as [-long] and [+long] respectively. Vowels in which length is positionally determined would presumably be lexically unspecified with respect to the feature [±long]. The conditions governing length in these vowels can be formalised in terms of the following allophonic rules (cf. the informal statements in 1.4.1):

(24)

$$\begin{bmatrix} \text{i} \\ \text{ʉ} \end{bmatrix} \longrightarrow \left\{ \begin{array}{ll} [+\text{long}] & / \ \_\_ \left\{ \begin{array}{c} \begin{bmatrix} +\text{cont} \\ +\text{vce} \end{bmatrix} \\ \text{V} \\ \# \end{array} \right\} \\ & \\ [-\text{long}] & \end{array} \right\}$$

(25)

$$\begin{bmatrix} \text{e} \\ \text{o} \\ \text{əʉ} \\ \text{əi} \end{bmatrix} \longrightarrow \left\{ \begin{array}{ll} [+\text{long}] & / \ \_\_ \ \left(\begin{array}{c} \text{C} \\ [+\text{voice}] \end{array} \right) \ \begin{array}{c} \text{C} \\ [+\text{voice}] \end{array} \\ & \\ [-\text{long}] & \end{array} \right\}$$

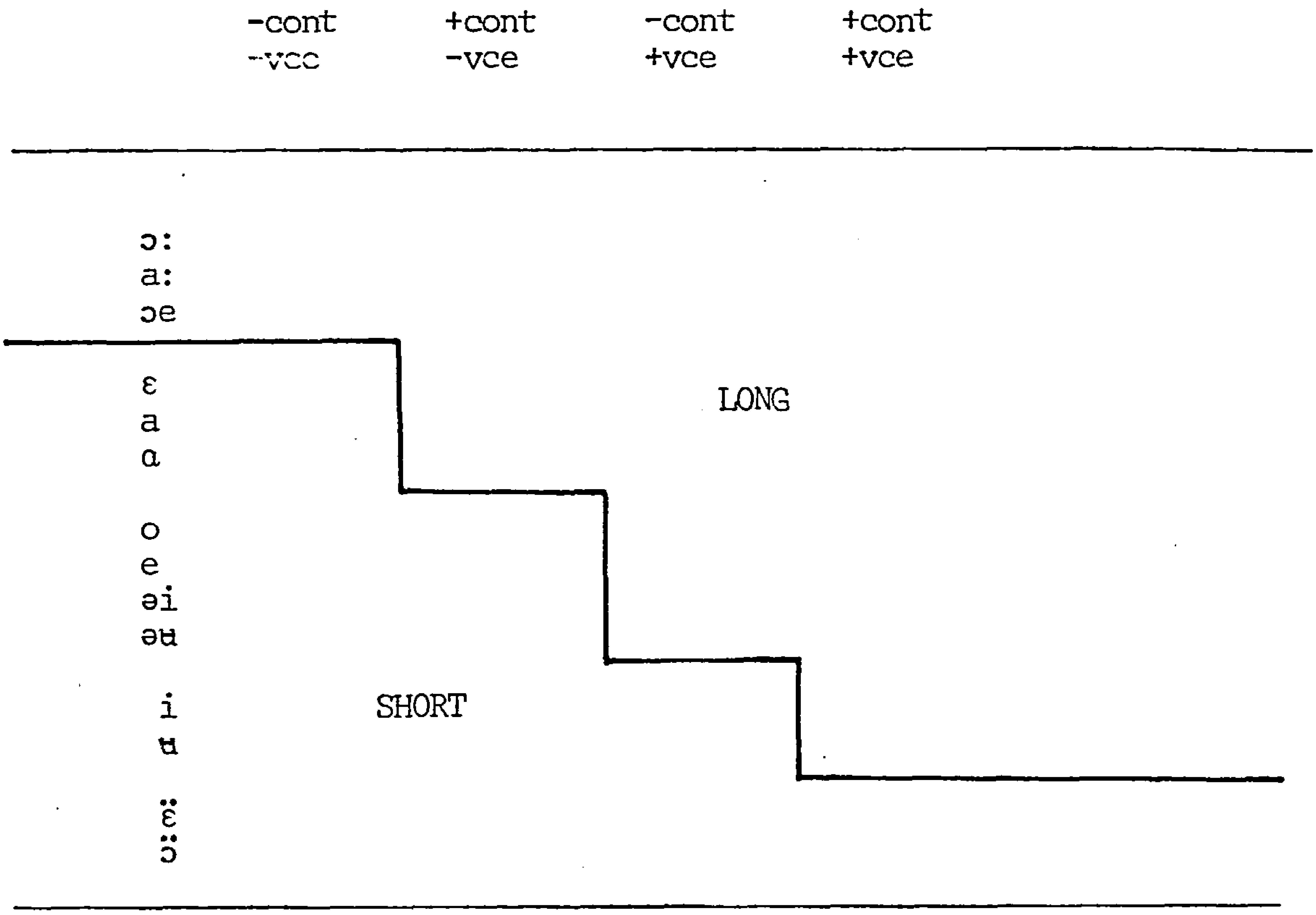
(26)

$$\begin{bmatrix} \text{ɛ} \\ \text{a} \\ \text{ɑ} \end{bmatrix} \longrightarrow \left\{ \begin{array}{ll} [+\text{long}] & / \ \_\_ \left\{ \begin{array}{c} \begin{bmatrix} +\text{cont} \\ -\text{vce} \\ +\text{ant} \end{bmatrix} \\ \left(\begin{array}{c} \text{C} \\ [+\text{voice}] \end{array} \right) \ \begin{array}{c} \text{C} \\ [+\text{voice}] \end{array} \quad \# \end{array} \right\} \\ & \\ [-\text{long}] & \end{array} \right\}$$

(In the Aitken's Law 'long' environments expressed in (24), the specification [+cont, +vce] is assumed to include /r/ (in addition to /ð, v, z/) but not /l/ which is a 'short' context. This point is discussed further in 2.6.5.)

The combined effect of these rules is to specify the vowels in question as short or long in particular contexts. Rather than have the representation of phonetically conditioned length spread over three rules, it would be preferable to have it expressed in a single unified statement. The atomised account provided by (24), (25) and (26) obscures the fact that length in different classes of BV vowels is distributed preferentially across particular environments (for the time being I will concentrate on monosyllabic contexts):

(27)



The framework within which I propose to formulate a unified statement of BV vowel quantity includes a single length rule which is subsumed under two higher-order phonological hierarchies. The latter consist of:

(i) a vowel scale (V-scale) which specifies the preferential order of input elements to the length rule; and

(ii) a consonantal scale (C-scale) which expresses the ranking of positional constraints in the environment of the length rule.

The V-scale defines the relative propensity of vowels to undergo lengthening ('drawling') or shortening ('clipping'). The C-scale expresses the relative ability of consonants to induce drawling or clipping in a preceding vowel. If we follow Foley's and Vaiana Taylor's lead we would equate lengthening with strengthening and shortening with weakening. More precisely, lengthening would be said to affect strong vowels preferentially and most extensively in strong consonantal environments and shortening to affect weak vowels preferentially and most extensively in weak environments (cf. Foley's inertial development principle (7)). However, the equation of length with strength and shortness with weakness is entirely arbitrary, if we assume that phonological hierarchies are phonetically interpretable. Since the latter position is the one I am adopting, I prefer to restrict the terms strengthening and weakening to their traditional applications. That is, strength implies resistance to airflow; weakness implies susceptibility to lenition processes such as opening or sonorisation. There is no way in which the lengthening or strengthening of a vowel can sensibly be said to involve articulatory parameters such as these. The phonetic facts which I hope to show underlie the vowel length changes under discussion here are of quite a different sort. That is not to say of course that the scales I am proposing have nothing at all in common with the abstract strength hierarchies of Foley and others. The most important characteristic that is shared by all versions of the phonological hierarchy model remains the expression of implicational relations among segment-types; whether this be on the basis of their distributional properties or of their propensity to induce or undergo particular processes.

My intention is that the BV vowel-length rule which is subsumed under the V-scale and the C-scale should take various forms. Firstly, it can be formulated as a synchronic rule which simply states the distribution of long vs short allophones for each vowel across different environments. Secondly, a rule which is formally similar to the synchronic one can be formulated so as to summarise the historical processes which have given rise to the present-day long vs short distribution. The rule can also form the basis of a dynamic account of present-day variation in the distribution of BV vowel quantity. As we shall see (3.6.2), the two hierarchies together with the length rule can be used to 'predict' the order in which observed changes in progress affect particular vowels and environments. In this application, the model I am proposing serves as a useful tool for reconstructing the history of BV vowels. I begin my discussion of the V-scale and C-scale by concentrating on the formulation of a synchronic statement of BV vowel quantity.

2.4.2 Proposal for a vowel scale. It is evident from (27) that the extent to which BV vowels exhibit length across different environments correlates closely with vowel height. Thus, amongst the vowels with positionally determined length, the lowest (/ɛ, a, ɑ/) show length most extensively (in three of the four environments listed in (27)). The highest vowels (/i, ʉ/), on the other hand, show the most restricted distribution of long allophones (in only one of the four environments in (27)). Length in the mid vowels /e, o/ and /əi, əʉ/ (mid in terms of the height of the first mora) is more extensive than in the highest vowels but not as extensive as in the lowest, appearing in two out of the four environments in (27).

Given this pattern of quantity distribution, the following hierarchy can be established for the BV vowels:

(28)

V-scale

	e	
ɛ	o	i
a	əi	ʉ
ɑ	əʉ	
1	2	3

——————————————————>

(28) is designed to express the fact that relatively lower-ranked vowels on the scale show a more extensive distribution of long allophones than relatively higher-ranked ones. The arrangement of elements in (28) appears to correlate reasonably closely with the articulatory height of the vowels (although there is a certain amount of underdifferentiation among the lowest vowels /ɛ, a,ɑ/).[3] (On the face of it then, the scale looks very much like a ternary classificatory feature [height], except of course that the former expresses implicational relations among vowels in a way that the latter doesn't.)

It is of course not surprising to find vowels grouping themselves into natural classes defined by height. There are many cases in the literature where participation in particular phonological processes is specified in terms of vowel-height features (an obvious example is the English Great Vowel Shift). Other proposals for scales of vowel strength correlate closely with vowel height. On the basis of processes of nasalisation, assibilation, apocope and reduction in a number of languages, Foley establishes a scale of relative phonological strength η (which is one component in the combined ηω parameter (6)) (1977: 45):[4]

(29)

i	e	a
u	o	
———	———	——→
1	2	3

Although Foley rejects the relevance of phonetic considerations in setting up his strength scales, the hierarchy in (29) clearly correlates with phonetic height. Most interesting for our purposes is Vaiana Taylor's adaptation of Foley's η scale (as given in Foley 1970b), since she employs it in her treatment of vowel quantity changes in southern Scots (1972: 209ff; 1974). The widespread propensity for vowels to participate differentially in phonological processes according to phonetic height suggests that there is some independent motivation for scales such as (28) and (29). I return to this in 2.6.2.

2.4.3 Vaiana Taylor's sonorance scale. I wish to preface the discussion of a positional hierarchy for BV with a few remarks on a similar proposal by Vaiana Taylor (1972, 1974). Consideration of her 'sonorance scale' is particularly relevant here for at least three reasons. Firstly, hers is the fullest treatment of vowel lengthening in terms of a strength hierarchy that I am aware of. Secondly, the dialect of English from which she draws her data, southern Scots, is closely related to BV (via Ulster Scots). Thirdly, her analysis throws up a number of problems which must be overcome before we can successfully apply a similar model to vowel quantity changes in BV and its source dialects.

Two authors have already sought to account for certain vowel-length distributions in MUE in terms of Vaiana Taylor's sonorance scale: J. Milroy (1976) for /ɛ, a, ɑ, e/ in BV and Pitts (1982) for /ɛ, a/ in BV and Lurgan Vernacular. However, they go further and adapt the scale as a framework for describing quality variations as well. To a certain extent, the criticisms that I will level at Vaiana Taylor's model also apply to these two treatments. The application of the scale cannot be extended to handle allophonic variation in other vowels (crucially, those that have undergone Aitken's Law but no other length changes). Moreover, there doesn't seem to be any way of establishing an empirically plausible relationship between length or quality changes in a vowel and the sonorance value of a neighbouring consonant. (More on this in 2.6.1.) For example, why should the low sonorance value of say /t/ elicit open realisations of /ɛ/? To be fair, at no point in his 1976 discussion does Milroy repeat Vaiana Taylor's claim that the sonorance scale 'explains' allophonic variation in vowels. For him the hierarchy seems to be more in the nature of a convenient descriptive device whose possible phonetic interpretation is not at issue.

Vaiana Taylor's basic assumption is that a number of changes in southern Scots can be derived from a larger phonological pattern which can be expressed in terms of a strength hierarchy. In particular, she claims, vocalisation of /l/, lengthening of vowels in Aitken's Law 'long' environments and breaking in southern Scots are all manifestations of phonological strengthening. Strengthening occurs on a sonorance scale and involves a given segment moving up the scale to a stronger position when it occurs before classes of segments which are already high on the scale. The sonorance scale, reproduced here in its 1974 (406) form, looks like this:

(30)

t s d z l j i ii
$\longrightarrow$

The symbols in (30), arranged from left to right in order of increasing strength, are representative of larger segment classes: voiceless stops, voiceless fricatives, voiced stops, voiced fricatives, liquids, glides, short vowels and geminate vowels (long vowels and diphthongs). According to this hierarchy, vowel lengthening is manifested as the strengthening of a short vowel to a geminate before certain segments that are high on the scale.

The precise form of Vaiana Taylor's sonorance scale is important, because it makes several omissions which have an adverse bearing on the applicability of her model to the Aitken's Law changes in vowel quantity. She states that her sonorance scale is essentially like Foley's ρ-parameter (given in (5) and repeated here for convenience) (1972: 180):

(5)

t   s   n   l   j   e

————————————————>

1   2   3   4   5   6

Two points of divergence between Foley's ρ-scale (5) and Vaiana Taylor's sonorance scale (30) should be noted. First, the ordering of obstruents on each of the two scales is quite different. Vaiana Taylor assumes the ranking of obstruents to be (in order of increasing strength): voiceless plosives — voiceless fricatives — voiced plosives — voiced fricatives. Foley, on the other hand, has two undifferentiated classes of plosives and fricatives (t and s on his scale) which are neutral with respect to voicing. Thus, he orders voiced plosives lower on the scale than voiceless fricatives. The position of voiced fricatives relative to the other segment classes on the scale is obviously crucial to the correct formulation of Aitken's Law and related changes within this framework. As we shall see, an accurate statement of the vowel length changes in question is not possible, given the ordering of elements on Vaiana Taylor's sonorance scale.

A second difference between the two scales is that, unlike Foley's ρ-scale, Vaiana Taylor's hierarchy makes no mention of the class of nasals. She makes the surprising comment that 'nasals play little or no role in the Scots sonorance groupings' (1972: 180). Since both nasals and, for example voiced stops are Aitken's Law 'short' environments, it seems inconsistent to include the latter on the sonorance scale but not the former. The real reason that Vaiana Taylor omits nasals from the scale, I suspect, is that their inclusion would mess up her analysis of vowel lengthening as preferential strengthening. In a discussion of the phonetic basis of the sonorance scale, Vaiana Taylor cites approvingly Chomsky & Halle 1968 and Ladefoged 1971. Although the definitional basis of the feature [±sonorant] is different in these two works (articulatory in the former and acoustic in the latter), the resulting categorisation of segments into major classes is almost identical. (The only major difference, as Ladefoged points out, involves the treatment of [h] and [?] (1971: 58).) Chomsky & Halle's major class features produce the following classification of segments:

(31)

	sonorant	consonantal	vocalic
vowels	+	–	+
glides	+	–	–
liquids	+	+	+
nasals	+	+	–
obstruents	–	+	–

Expressed in terms of a sonorance scale, this classification would look almost identical to Foley's ρ-parameter (5). Given Vaiana Taylor's declared adherence to such a categorisation of segment classes, we would expect nasals on her sonorance scale to be ordered between voiced fricatives and liquids:

(30')

t s d z n l j i ii
——————————————————>

Indeed this is the position assigned to nasals by Vennemann (1972a) and Hooper (1976) on their sonority hierarchies. This ordering, as we shall see, has repercussions on the ability of Vaiana Taylor's model to state Aitken's Law correctly.

A third problem with the ordering of elements on Vaiana Taylor's sonorance scale concerns the class of liquids. As with Foley's ρ-parameter, the category of liquid is undifferentiated as between laterals and /r/. The differentiation of these two segments is clearly crucial to the correct statement of Aitken's Law, since following /l/ is a 'short' environment and /r/ a 'long' one.

The basic difficulty with Vaiana Taylor's attempt to state Aitken's Law in terms of a sonorance scale centres around the fact that, given a fully articulated version of the hierarchy (as in (30')), the Aitken's Law 'long' environments cannot be characterised as a continuous series on the scale (at least not without doing violence to the whole notion of sonorance). The problem arises in the central section of the hierarchy. Given the ranking (in order of increasing strength) voiced fricatives — nasals — liquids, it is impossible to separate out the class of Aitken's Law 'long' consonants (i.e. /ð, z, v, r/) without destroying the principle of preferential ordering that lies at the very heart of the concept of phonological strength. According to the sonorance hierarchy, any lengthening (i.e. strengthening) of a vowel must apply preferentially and most extensively in strong environments before relatively weaker ones. Thus, given the arrangement in (30'), for lengthening to occur before voiced fricatives, it must first have applied in the relatively stronger contexts of nasals and laterals (as well as before /r/). This is clearly not what has happened in the Aitken's Law changes.[5]

The fact that the Aitken's Law lengthening (or length-preserving) environments form a discontinuous class on the sonorance hierarchy suggests one of three things:

(i) any attempt to characterise the Aitken's Law environments in terms of sonorance is mistaken; or

(ii) Aitken's Law is expressible in terms of sonorance, but our definition of sonorance is wrong; or

(iii) the Aitken's Law conditions are not amenable to characterisation in terms of a phonological strength hierarchy.

In what follows I argue that it is possible (and desirable) to apply the concept of phonological strength to the statement of Aitken's Law and related changes, but that sonorance (however it might be defined) is not the phonetic factor that is primarily involved.

2.4.4 Proposal for a consonant scale. Let us turn to the task of establishing a positional hierarchy that will express the phonetic conditions governing quantity in those BV vowels that are without phonemic length. The lexically long vowels /a:, ɔ:, ɔe/ and lexically short /ɛ̈, ɔ̈/ are excluded from the discussion. I wish to concentrate on the conditioning environment of following consonants. I will exclude word-final position and following vowels from the discussion, since these have a long history of favouring long vowels in Germanic anyway (see Prokosch 1939: 140) and are therefore not of central interest to our discussion of specifically Early Modern and present-day quantity changes. For the time being I will make no reference to sonorance or any other phonetic parameter that might underlie the observed quantity distributions in BV.

The rank of individual segment-types on the BV positional hierarchy can be calculated by referring to the statement of vowel length conditions in (27). The 'strength' of the Aitken's Law 'long' consonants (voiced fricatives and /r/) is indicated by the fact that all vowels with positionally determined quantity show length in these environments. As far as /i, ʉ/ are concerned, this is the only context in which long variants appear. The positional ranking of segments calculated on the basis of their participation in Aitken's Law is as follows:

(32)

```
 t
 d
 s           r
 n           z
 l
──────────────>
 1           2
```

(The symbols in (32) and subsequent positional scales are representative of larger classes of segments: t = voiceless plosives and affricates, d = voiced plosives and affricates, s = voiceless fricatives, n = nasals, l = laterals, z = voiced fricatives, r = /r/.)

In the case of /e, o, əi, əʉ/, the distribution of long realisations is extended beyond the Aitken's Law 'long' environments to all voiced contexts. (The special conditions obtaining before clusters containing a sonorant followed by a voiceless obstruent are dealt with below.) For these vowels, the positional weighting of quantity-conditioning consonants is:

(33)

```
                 z
 t               r
                 n
 s               l
                 d
─────────────────────>
 1               2
```

Finally, distribution of length in /ɛ, a, ɑ/ includes all the environments specified for /e, o, əi, əʉ/ as well as the context of following voiceless fricatives, which gives us

(34)

```
                 z
                 r
 t               n
                 l
                 d
                 s
─────────────────────>
 1               2
```

Adding the values contained in the three scales (32), (33) and (34) (and adjusting the sum to a base of 1) yields the following composite positional hierarchy:

(35)

C-scale

$$\begin{array}{cccc} & & \text{d} & \text{z} \\ \text{t} & \text{s} & \text{n} & \text{r} \\ & & \text{l} & \\ \hline \longrightarrow \\ 1 & 2 & 3 & 4 \end{array}$$

2.4.5 <u>BV vowel length rule</u>. We are now in a position to state the general rule which governs length in BV vowels. The values assigned to C (consonant) and V (vowel) in the rule are derivable from the two phonological hierarchies I have set up: the V-scale (28) (reproduced here for convenience as (36)) which defines the input to the rule; and the C-scale (35) which specifies the environment of the rule:

(36)

V-scale

$$\begin{array}{ccc} & \text{e} & \\ \text{ɛ} & \text{o} & \text{i} \\ \text{a} & \text{əi} & \text{ʉ} \\ \text{ɑ} & \text{əʉ} & \\ \hline \longrightarrow \\ 1 & 2 & 3 \end{array}$$

The basic outline of the length rule is quite simple. The subrule for /ɛ, a, ɑ/ looks something like:

(37)

$$\begin{bmatrix} \text{V} \\ \text{1 on V-scale} \end{bmatrix} \longrightarrow \left\{ \begin{array}{l} [+\text{ long}] \quad / \quad \text{—} \begin{bmatrix} \text{C} \\ \text{2-4 on C-scale} \end{bmatrix} \\ [-\text{ long}] \end{array} \right\}$$

For /e, o, əi, əʉ/:

(38)

$$\begin{bmatrix} \text{V} \\ \text{2 on V-scale} \end{bmatrix} \longrightarrow \left\{ \begin{array}{l} [+\text{ long}] \quad / \quad \text{—} \begin{bmatrix} \text{C} \\ \text{3-4 on C-scale} \end{bmatrix} \\ [-\text{ long}] \end{array} \right\}$$

For /i, ʉ/ (Aitken's Law):

(39)

$$\begin{bmatrix} \text{V} \\ \text{3 on V-scale} \end{bmatrix} \longrightarrow \left\{ \begin{array}{l} [+\text{ long}] \quad / \quad \_\_ \quad \begin{bmatrix} \text{C} \\ \text{4 on C-scale} \end{bmatrix} \\ [-\text{ long}] \end{array} \right\}$$

Subrules (37), (38) and (39) can be collapsed under:

(40)

$$\begin{bmatrix} \text{V} \\ \text{x on V-scale} \end{bmatrix} \longrightarrow \left\{ \begin{array}{l} [+\text{ long}] \quad / \quad \_\_ \quad \begin{bmatrix} \text{C} \\ \text{>x on C-scale} \end{bmatrix} \\ [-\text{ long}] \end{array} \right\}$$

The allophonic rule (40) fills in the quantity specification of those BV vowels in which length is not lexical. (It will be recalled that, of the vowels that do not appear on the V-scale, /ɔ:, a:, ɔe/ are lexically long, /ɛ̈, ɔ̈/ are lexically short.) By making reference to the two hierarchies (35) and (36), the rule captures the fact that length in BV is distributed preferentially across different vowels and environments. This is one obvious advantage that this approach has over the atomised account of BV vowel quantity that is provided by the three notationally unrelated rules (24), (25) and (26). Employing a phonological hierarchy model such as that proposed here enables us to make explicit the implicational relations that hold among vowels and environments with respect to the distribution of quantity. A long realisation of vowel A in environment X implies long realisations in the same environment of all vowels below A on the V-scale. Similarly, a long realisation in environment X of vowel A implies that the same vowel is also long in all environments above X on the C-scale.

With minor modifications, the synchronic rule (40) can be pressed into service as a general statement of the historical lengthening and shortening processes that have given rise to the present-day pattern of length distribution. In both its synchronic and diachronic aspects, the length rule is derivable from the same higher-order phonological hierarchies, which suggests that the conditions which were operative in the historical processes are still productive in present-day BV. This is borne out by the fact that vowels in newly borrowed lexical items invariably conform to the conditions expressed in the hierarchies. (For example, /a/ is long in the proper names <u>Daz</u>, <u>Daf</u>, <u>Iran</u>, <u>Saab</u>, and short in Iraq, Satch, prat.)

Historically, lengthening has applied preferentially and most extensively to open vowels in relatively higher-ranked environments on the C-scale; shortening has applied preferentially and most extensively to close vowels in lower-ranked environments. The most important vowel quantity changes summarised in the diachronic counterpart of (40) are:

(41)

(a) Lengthening of /ɛ, a, ɑ/ < ME short /e, a, o/ in all environments except before voiceless stops or affricates.

(b) Shortening of /i, ʉ/ < ME long /e:, o:/ in all environments except before voiced fricatives, /r/, V, or # (Aitken's Law).

(c) Shortening of /e, o, əi, əʉ/ < ME long /a:, ɔ:, i:, u:/ before voiceless consonants.

Thus far I have concentrated on the historical development and synchronic distribution of BV vowel quantity before single word-final consonants. There seems little problem in extending the proposed phonological hierarchy model to include consonant clusters. I don't intend dwelling on this, but a few remarks on the distribution of length in /ɛ, a, ɑ/ before two-consonant clusters will illustrate the point. (In fact, it's not at all clear that basic BV has word-final clusters of more than two consonants anyway: historical word-final three- or four-consonant combinations have been reduced by cluster simplification processes (see 1.5).)

By making reference to the C-scale, it seems possible to arrive at an index of cluster weight that is derivable from two measures: the absolute weighting of the individual consonants in a cluster and the difference in the relative weightings of the two consonants. As far as absolute values are concerned, it is possible to exploit a proposal by Foley that strength scales tend to divide into an inherently weak and an inherently strong end (1977: 126ff). With respect to the patterning of vowel quantity before clusters, the C-scale can be bisected between positions 2 and 3, a division that corresponds to a voiced : voiceless bifurcation. In a BV two-consonant final cluster, any combination of elements from the upper (voiced) half of the scale will condition long realisations of /ɛ, a, ɑ/ (e.g. bend (3+3), twelve (3+4), lard (4+3), starve (4+4)). The typically 'short' characteristic of positions on the lower (voiceless) half of the C-scale is evidenced by the fact that, at least in conservative BV, they override the otherwise lengthening properties of elements on the voiced end of the scale with which they may appear in combination. Nevertheless, the tension between 'long' and 'short' consonants in such clusters is the source of considerable variation which appears to be symptomatic of change in progress. For while the vowels in bent, felt (3+1), tart (4+1), dense, else (3+2), arse (4+2) are short in conservative BV, there is a tendency for them to be lengthened in some progressive speech (see 3.6.3 for further discussion). The relative positions of vowels on the V-scale are reflected in their length characteristics when they appear before clusters of s followed by t (i.e. positions 2 and 1 on the lower half of the C-scale). While vowels with a value of 2 or more are short in this position (e.g. feast, boost, toast, taste), the most open vowels /ɛ, a, ɑ/ are long (e.g. best, fast, lost).

I have arranged segments on two phonological hierarchies, a V-scale (36) and a C-scale (35), purely on the basis of their behaviour with respect to the historical development and present-day distribution of vowel quantity in BV. It is now my intention to outline certain phonetic facts that can plausibly be considered to underlie the observed distributions.

2.5 Phonetic explanations in phonology

Let us return briefly to the question of the status that has been accorded phonetic considerations in different conceptions of phonological strength (see 2.1). The extreme abstract position adopted by Foley, as has been noted (2.2), considers phonetic factors to be irrelevant to any definition of strength. However, I consider it perverse to ignore the fact that many (if not all) of the changes which Foley claims can be explained as 'phonological' (i.e. abstract) strengthening or weakening can also be accounted for quite plausibly in phonetic terms. (See for example the lenition of intervocalic dentals discussed in 2.2.) Given a choice between two observationally adequate accounts of the same phonological change, one abstract and empirically uninterpreted, the other concrete and based on measurable facts, I would opt for the second on methodological grounds. However, it is important to be aware of some of the problems that are implicit in the concrete approach, not the least of which concerns the status of so-called phonetic explanations in phonology. The problem can be illustrated by looking at one particular attack on the notion of phonological strength.

Ohala (1974) discusses two changes that have been treated in terms of phonological strength: [s] > [ʃ] before /l/ in Norwegian (Foley 1973) and the vocalisation of /l/ in Scots (Vaiana Taylor 1974). He criticises the notion of phonological strength on the grounds that it is empirically unmotivated and then offers alternative, phonetic explanations for the changes in question. The Norwegian [sl] > [ʃl] change, Ohala suggests passed through a [sl̥] stage and was the result of articulatory reinterpretation arising out of the perceptual similarity of [l̥] and [ʃ]. Lass points out that Ohala's account cannot be considered an explanation in a strict deductive-nomological sense, since it provides neither necessary nor sufficient conditions for the transition from [l̥] to [ʃ] (1980a: 39ff). Lass argues that any attempt to explain assimilatory processes such as this in terms of general phonetic principles is doomed to failure on two counts. Firstly, it is impossible to predict whether any change will occur at all (the null strategy problem (1980a: 32)). Secondly, given that a change will occur, it is impossible to predict with absolute certainty which of any number of routes it will take (the multiple strategy problem (1980a: 39)).

The same criticism can be levelled at Ohala's alternative, phonetic 'explanation' of the Scots vocalisation of /l/ discussed in Variana Taylor 1974. I think it is worth looking at this example in some detail, since it illustrates a point that is relevant to the present discussion, namely that an abstract account in terms of phonological strength and a concrete phonetic account of the same set of data need not necessarily contradict one another.

When a liquid undergoes vocalisation, the outcome is generally a vocoid which retains the secondary articulation characteristics of the original consonant. Thus velarised [ɫ] when vocalised becomes high back [ɯ̆] or [ŭ]. It is possible to give a fairly straightforward phonetic account of how a process like this comes about; but before I get to it let's first consider two other allegedly incompatible explanations that appear in the literature. Vaiana Taylor seeks to explain the Scots changes [aɫ] > [au] (all), [oɫ] > [ou] (knoll) and [uɫ] > [u:] (pull) as a strengthening of the second element on the sonorance scale (see 2.4.3) (1972: 182ff; 1974: 407ff). Ohala claims that there is an asymmetry in vocalisation changes such as this which is inexplicable in terms of Vaiana Taylor's model. He points out that, according to the sonorance hierarchy, a change of [al] to [ai] would also count as strengthening and ought to be at least as frequent as [al] > [au]. According to Ohala, the incidence of high front vowels or glides developing from laterals is, however, extremely low. (He is apparently unaware that there are numerous reportings of palatalised [l'] doing just this, some of which I mention below.) The reason for the (alleged) asymmetry, Ohala suggests, is phonetic and has nothing to do with strengthening. He cites with approval Jonasson's (1971) account of vocalisation as resulting from the acoustic similarity between velarised laterals and high back vocoids. In spite of the articulatory differences between these segment-types, they are acoustically almost identical, as measured by the frequencies of formants one and two. The frequent change [ɫ] > [u] or [w], Jonasson suggests, is due to an articulatory reinterpretation arising from the perceptual similarity of the two sounds.

Now for the same reasons as those already cited from Lass 1980a we cannot accept Ohala's and Jonasson's accounts of [l]-vocalisation as explanations in the strictest sense. However, if we lower our sights a little and confess that deductive-nomological phonetic explanations of phonological change (at least interesting ones) are not available to us, given the present state of our knowledge, we can still offer a plausible phonetic account of what probably happens in changes such as this. But I don't think that acceptance of this sort of account necessarily implies rejection of one based on the principle of phonological strength. In fact a case can be made for subsuming the former under some version of the latter (although not the version outlined in Vaiana Taylor 1974). Vocalisation of liquids can be seen as a manifestation of a more general weakening process: the loss of supraglottal consonantal constriction, i.e. 'opening' in the sense of Lass & Anderson 1975. When opening affects a liquid, the result is a nonconsonantal sonorant, i.e. a vowel or a glide:

(42)

$$\begin{bmatrix} +\text{cons} \\ +\text{son} \\ -\text{nas} \end{bmatrix} \longrightarrow [-\text{cons}]$$

When velarised [ɫ] is vocalised, opening removes the tongue-tip constriction, so that what remains are the secondary articulation features of the original consonant, i.e. the outcome is a high back vocoid:

(42)

$$\begin{bmatrix} +\text{cons} \\ +\text{son} \\ +\text{lat} \\ +\text{cor} \\ +\text{back} \\ +\text{high} \end{bmatrix} \longrightarrow [-\text{cons}]$$

In not all cases is the resulting vocoid rounded, as Ohala and Jonasson seem to assume. Unrounded [ɯ̆] appears as the reflex of historical [ɫ] in for example Polish and some Scots dialects. The change [Vl] > [Vi] can also be naturally expressed as opening, if the lateral is palatalised:

(44)

$$\begin{bmatrix} +\text{cons} \\ +\text{son} \\ +\text{lat} \\ +\text{cor} \\ +\text{high} \\ -\text{back} \end{bmatrix} \longrightarrow [-\text{cons}]$$

In fact, (44) is more common than Ohala assumes. It occurs in the development of palatal [ʎ] or palatalised [l'] to [j] in French, e.g. [famiʎə] > [famijə] familie. Many United States dialects show vocalisation of /l/ to [j] medially between high front vocoids, e.g. in million, billion, billiard (see Sledd 1966). It is also present in the vocalisation of historical /l/ after back vowels in Viennese German (and other Bavarian dialects):

(45)

Viennese German		standard German
[pujt]	Pult	[pʰɷl't]
[goẽt]	Gold	[gɔl't]
[kʰɔẽt]	kalt	[kʰal't]

Opening of /r/ has similar results (see the discussion in Lass 1983). The loss of consonantal constriction in postvocalic pharyngealised /r/ in progressive Leinster HE (see 1.5) results in a low back vocoid (e.g. [d̪ɛ:ɑ̆] there), as does vocalisation of uvular /r/ in the same position in some types of German (e.g. [bi:ɑ̆] Bier):

(46)

$$\begin{bmatrix} \text{+cons} \\ \text{+son} \\ \text{-nas} \\ \text{-lat} \\ \text{+back} \\ \text{+low} \end{bmatrix} \longrightarrow [\text{-cons}]$$

Opening of palatalised /r/ naturally produces a high front glide. This is attested for example in some eastern seaboard and southern dialects of the United States, cf. the pronunciation of bird as [bɜɩd] or [bɵɩd] (Sledd 1966).

Examples of the vocalisation of liquids could be multiplied. What the ones cited here demonstrate is that the Scots [ɫ]-vocalisation discussed by Ohala is simply one of a number of phonetically motivated changes that can be derived from a more general phonological pattern, specifically one which relates the changes to differences in articulatory strength. In other words, there is room for both a concrete and a relatively more 'abstract' account of the same phenomena.

In the following discussion of the phonetic correlates of the proposed phonological hierarchies, two points that I hope have emerged from this section should be borne in mind. Firstly, the search for a phonetic account of the vowel quantity changes in BV does not negate the validity of a more abstract description in terms of a phonological hierarchy model as Ohala seems to assume. The latter approach embraces the former. Secondly, I accept Lass's (1980a) arguments that phonetic explanations (at least in the deductive-nomological sense) of language change are not available to us, given the present state of our knowledge. The model I am proposing here is nothing more than a 'metaphorical redescription' (Hesse 1966 - see the discussion in Lass 1980a: ch 5) which nevertheless offers greater insight into the phenomena under inspection than we would otherwise have. In particular, the hierarchies proposed in 2.4.2 and 2.4.4 provide a useful heuristic for investigating the possible phonetic correlates of the observed distributions. I offer the following comments on the phonetic basis of this particular phonological hierarchy model not as explanations but as plausible accounts of why the pattern of distributions is as it is.

2.6.0 Phonetic basis of the V- and C-scales

2.6.1 Sonority and vowel duration. I have already noted how the majority of models of phonological strength incorporate some claim about the interpretability of strength hierarchies in phonetic terms (2.1). Not all of these claims have been formulated explicitly enough for us to be able to assess their applicability to the changes in BV vowel quantity under discussion here. Those models that do include clearly articulated accounts of the connection between the phonological hierarchies and phonetic reality do not appear to be immediately relevant to the problem of vowel length. The explicitly articulatory model of strength outlined in Lass & Anderson 1975 is designed to handle the lenition and strengthening of consonants and was not intended to be extended to the treatment of vowel quantity phenomena. Neither was the amplitude scale constructed by Guile (1974) on the basis of specific assimilatory processes among consonants.

Of more immediate relevance to the present problem appear to be the various proposals for hierarchies based on sonority or sonorance. According to Jakobson & Halle, the contrast of successive sonority features is thepivotal principle of syllable structure (1956: 31). The nucleus of a syllable is optimally a vocalic segment characterised by maximum output of acoustic energy. The outer margins of the syllable (the release and arrest phases) optimally provide a contrast with the nucleus by containing the least vowel-like segments that produce the minimum of energy. This is the principle upon which

Hooper (1976) explicitly and Sigurd (1955) and Vennemann (1972a) implicitly base their phonological hierarchies. Segments are ordered on a scale of sonority (or 'energicity' in the case of Sigurd) from least to most vowel-like, an ordering that is reflected in the most frequently occurring patterns of syllable structure. The validity of this model as a means of expressing the domain within which syllabification rules apply has been supported by recent instrumental research (see especially Mermelstein 1975, 1977).

However, Vaiana Taylor's attempts to extend the notion of sonority to vowel quantity phenomena have been less successful. As we saw in 2.4.3, her sonorance hierarchy does not even fit the data she sets out to describe. Since the BV data include one set of changes (Aitken's Law) which Vaiana Taylor's sonorance scale fails to account for accurately, we cannot adopt her model for our present purposes. Another problem with Vaiana Taylor's proposal has to do with the claim that her strength hierarchy is phonetically interpretable. There seems little doubt that sonority can be defined in phonetic terms (as Jakobson & Halle 1956 and Mermelstein 1975 have shown), but there is no immediately obvious phonetic connection between this notion and vowel quantity. Vaiana Taylor adduces no evidence that might suggest why the sonority value of a given consonant should have anything to do with the length of a preceding vowel. Given her professed adherence to a concrete view of phonological strength, it is her responsibility to formulate an explicit account of how sonority and vowel quantity might interact phonetically. Otherwise sonority used in this connection is no more than an arbitrary label that provides no insight into the phonetic motivation of the vowel length changes in question.

If we attempt to argue for the existence of a phonetic link between sonority and vowel duration by extrapolating from Vaiana Taylor's comments, we run into difficulties anyway. She quotes approvingly Ladefoged's (1971) definition of sonority in terms of acoustic energy (1972: 176). One component of such a definition is a measure of the overall intensity associated with individual segments. Given her model of phonological strength, we might expect (a) that variation in the intensity of a vowel should be governed at least partly by intensity differences in the following segment, and (b) that greater intensity in a vowel should be productive of greater duration. Instrumental studies bear the first of these expectations out but not the second. House & Fairbanks, for example, found that certain consonants were productive of greater mean power in preceding vowels than were others (1953: 110). Their findings translate into the following consonantal scale (in order of increasing productiveness of intensity):

(47)

voiceless stops	voiceless fricatives	voiced stops	nasals	voiced fricatives

⟶

This corresponds closely to the sonority scales proposed by Vaiana Taylor (1972), Vennemann (1972a) and Hooper (1976). (The pattern in (47) is, however, not quite so clear-cut when segment-classes are broken down according to place of articulation.) The next stage in the argument would presumably be to associate increased intensity in a vowel with increased duration. That is, strengthening in a particular vowel is manifested as an increase in intensity which in turn produces an increase in duration. However, it is one thing to link vowel intensity with the intensity of a following consonant, but quite another to assume a necessary connection between vowel intensity and vowel length. In fact, results presented in the same article by House & Fairbanks contradict any such assumption. They show no correlation in the American English dialect in question between the relative power and duration of the vowels measured. For example, one of the vowels with the lowest mean intensity (/æ/ in bad) exhibits the greatest mean duration (1953: 111). On the other hand, /u:/ (in food) shows comparatively high relative power and a comparatively low mean duration value.

It seems then that, in seeking a phonetic account of the distribution pattern of BV vowel quantity, we have to look beyond the notion of sonority. This does not necessarily imply that no factor defined in terms of output of acoustic energy is involved. But a survey of the relevant phonetic literature suggests that other factors are at least as important, if not more so, as determinants of durational variation in vowels.

2.6.2 Factors determining length variation in vowels. In the introduction to the discussion of vowel quantity in northern HE (1.1.2), I remarked on the need to differentiate between vowels with phonemic length and those with positionally determined length. This differentiation was of course arrived at by following one of the basic procedures of phonological analysis: the separation of phonetic properties into those that are linguistically distinctive and those that are not. Isolating particular phonetic contrasts as distinctive constitutes an 'explanation' in itself of their presence in the speech continuum. On the other hand, very different sorts of explanations are needed to account for phonetic contrasts which carry no distinctive value but nevertheless exhibit regularities of occurrence. Such explanations will most often make reference to social factors and/or to physiological constraints. In seeking to account for phonetic contrasts, such as those involving vowel quantity differences, it is therefore important to establish whether they are (a) a matter of linguistic structure, i.e. acquired speech habits that are specific to the language in question, or (b) conditioned by inherent articulatory or perceptual constraints.

It is also obviously important to recognise that the development of a particular pattern of quantity distribution may at different stages involve an interaction between (a) and (b). Let us assume that the impetus for a given lengthening process is explicable historically in terms of the physiological constraints inherent in the production and reception of speech. The phonetic motivation may still be transparent in the length rule that is the synchronic reflex of the original process. In this case, we are dealing with phonetically conditioned vowel length, such as we find in both the diachronic and synchronic aspects of Aitken's Law. On the other hand, the original phonetic motivation of the change may become opaque (for instance as the result of subsequent loss of the conditioning factor), in which case the synchronic quantity pattern is an arbitrary imposition of the phonological system that is acquired by speakers of the language in question. This is one possible origin of phonemic length. (It is always possible of course that the development of phonemic length in some cases was never at any stage phonetically motivated; or even that it was 'always there' and never 'developed'.)

Of the three categories of BV vowels discussed in 1.4.1, two display phonemic quantity: inherently short /ɛ̈,ɔ̈/ and inherently long /ɔ:, a:, ɔe/. Length in these two categories of vowels is not amenable to explanation in terms of physiological constraints - it is simply a characteristic that is specific to the phonology of BV and related dialects. The historical development and synchronic distribution of length in the third and largest category of BV vowels can, however, be accounted for in terms of articulatory and/or perceptual factors. The V-scale (36) and the C-scale (35) have been constructed with the express purpose of elucidating these physiological factors. A survey of the relevant phonetic literature reveals that we know enough about durational variation in vowels to allow us to propose certain empirical facts as determining the order of elements on the hierarchies. Nevertheless, it is important to bear in mind that the physiological or acoustic factors which provided the impetus to the original vowel length changes may not necessarily be identical to those which maintain the synchronic pattern of length distribution.

Phoneticians have generally recognised at least four factors that can contribute to the determination of vowel quantity differences. These are:

(48)

(a) the lexical specification of a particular vowel as [±long] or some similar distinctive feature (e.g. [±tense]);

(b) the degree of articulatory opening involved in the production of the vowel;

(c) the 'voicing' value (however that may be defined) of the following consonant;

(d) the manner of articulation of the following consonant.

Factor (48a), as we have seen, is what distinguishes phonemically long from phonemically short vowels. As a system-specific phonological characteristic, it is not explicable in physiological or acoustic terms. I wish to focus on the other three factors in (48) by discussing some problems associated with their definition and investigating the degree to which each might determine the order of elements on the phonological scales proposed in 2.4.2 and 2.4.4. I hope to demonstrate that factor (48b) is responsible for the order of segments on the V-scale and that both (48c) and (48d) determine the order of segments on the C-scale. It is evident that the voicing and manner of articulation features of consonants are involved in the specification of the natural classes defined by the C-scale. The problem is to interpret these features in terms of the physiological properties that can plausibly be said to control durational variation in a preceding vowel. In other words, we know what features are involved; now our task is to investigate how they operate to influence vowel quantity.

2.6.3 Vowel quantity and tongue/jaw movement. Several writers have noted that vowel duration tends to be directly related to the size of mouth opening and inversely related to tongue height (e.g. House & Fairbanks 1953; Peterson & Lehiste 1960; House 1961; Sharf 1962; Lindblom 1967). This is generally understood as a mechanical effect due to a temporal constraint on the movement of the lower mandible, with that of the tongue also implicated. (Lindblom & Sundberg (1971) show that the height of the tongue is largely dependent on the position of the lower jaw.) Lehiste puts this view quite explicitly: the greater length of low vowels is due to the greater extent of the articulatory movements involved in their production (1970: 19).

Lisker (1974) suggests at least two other possible interpretations of the reported correlation between vowel height and duration. One is that lower vowels, produced with greater movement of the lower jaw and possibly also the tongue, involve a greater expenditure of 'articulatory energy' than higher vowels, which results in greater duration. This interpretation rests on prior acceptance of the feature [±tense] defined in terms of muscular effort (as in Chomsky & Halle 1968: 324-326). According to such a definition, the markedly longer duration of tense vowels is a natural consequence of the greater expenditure of muscular energy. This interpretation is seriously weakened by recent successful attacks on the whole notion of tenseness (e.g. Lass 1976: 39ff). Lisker's second suggestion is that the greater length of lower vowels is due to a perceptual constraint which operates to maintain the formant pattern over a longer period of time. This is necessary, he claims, because of the more extensive formant shifts that occur in the onset and offset of low vowels. However, functional accounts such as this are notoriously difficult to test, and Lisker himself admits that there is little to support this interpretation (1974: 237).

For the time being, it seems reasonable to accept the majority interpretation as a plausible hypothesis about the factors that underlie the observed correlation between vowel duration and height. It also seems reasonable to conclude that the order of vowels on the V-scale (36), at least in its broadest outline, is determined by these same factors. In other words, the ranking of vowels established on the basis of observed length distributions is a reflection of the articulatory constraints placed on vowel duration by the movement of the tongue and lower jaw. We can go further and venture as a plausible suggestion that lengthening processes are likely to affect low vowels before high vowels because of the tendency of the former to be longer for articulatory reasons. For the same reasons, we should expect high vowels to be affected by shortening before low vowels.

The general validity of the rank order of segments expressed in the V-scale is indicated by cross-linguistic surveys of vowel duration which bear out the observation that, other things being equal, lower vowels tend to be longer than higher vowels (see Zimmermann & Sapon 1958; Lehiste 1970: 18). Besides the vowel quantity developments in BV under discussion here, it is possible to think of examples from the recent history of English that conform to this pattern. Four particular lengthening processes involving the reflexes of ME short /i, e, a, o, u/ provide an illustration:

(i) ME open-syllable lengthening affected low vowels earlier than high ones.

(ii) The Early Modern lengthening of historically short vowels before /f, θ, s/ in southern English only affected the lowest vowels, namely ME /a/ and the lowered reflex of ME /o/. Thus the vowel in <u>pass</u> is long in most southern English dialects, as is the vowel in <u>cross</u> (except in progressive RP), but those in <u>kiss</u>, <u>puss</u>, <u>fuss</u>, <u>less</u> from historically nonlow sources have remained short.

(iii) The more recent North American lengthening of historically short vowels in predominantly voiced environments has preferentially affected low vowels before high ones. The vowels that have been most extensively affected by this process are, as in (i), ME /a/ and the lowered reflex of ME /o/ (e.g. bad, pod). As far as I know, of those dialects with lengthened reflexes of originally short nonlow vowels (a characteristic of many Southern States dialects, e.g. in bed, bud, bid), there are none that do not also have lengthened reflexes of ME /a/ and /o/.

(iv) In Scots, the lengthening of short vowels in Aitken's Law 'long' environments affected the reflexes of ESc nonhigh /e, a, o/ but not high /i, u/ (sources of the modern vowels in e.g. live (vb) and fur).

2.6.4 Vowel quantity and the voicing characteristic of the following consonant. Of the factors that condition durational variation in vowels, the nature of a following consonant has been found to be one of the most important. Place of articulation differences have been shown to influence vowel length to a certain extent. Lehiste, for example, establishes the ranking alveolars > velars > labials among stops for decreasing length in preceding phonemically long vowels (1970: 20ff). Much more significant in this respect, however, are the voicing and manner characteristics of following consonants. That vowels in the English dialects most studied tend to be longer before voiced segments than before their voiceless cognates is well-known (see for example House & Fairbanks 1953; Peterson & Lehiste 1960; House 1961; Sharf 1962; Stevens & House 1963). The problem is how to interpret the correlation between vowel length and consonant voicing.

One question that needs to be answered at the outset is what exactly is meant by the term 'voicing'. As is well known, in English the phonological opposition that distinguishes say /t/ and /d/ in bit and bid is not necessarily always manifested as a phonetic voicing contrast. In other words, it is imperative to draw a distinction between an abstract lexical contrast [+voice] vs [-voice] and the concrete phonetic contrast that is realised as the presence vs absence of vocal cord vibration. It is true that in English certain lexically [+voice] consonants are consistently realised as phonetically voiced in certain environments. Sonorants are generally fully voiced in all dialects. In most dialects, however, phonologically voiced obstruents are phonetically only partially voiced or even fully voiceless in initial or final positions. In such dialects, phonetically fully voiced obstruents are only likely to occur in maximally voiced environments (e.g. intervocalic position). One suggestion as to why obstruents have a tendency to devoice is that spontaneous voicing may be suppressed if the air passage is narrowed (as in obstruents) to the extent that the rate of air flow is reduced below the level necessary for the Bernouilli effect to occur in the larynx. Chomsky & Halle in fact take this to be one of the defining characteristics of the feature [±sonorant] (1968: 302). (However, see below for a brief discussion of some of the problems associated with the notion of spontaneous voicing.) Whatever the reasons for this tendency are, it is evident that any discussion of the effect the voicing feature of a particular consonant has on the duration of a preceding vowel must take into account the difference between phonological and physiological voicing.

I wish to examine briefly some of the most commonly proposed interpretations of the observed correlation between vowel duration and the voicing characteristic of the following consonant. Several writers have arrived at a perceptual interpretation of the phenomenon, basing their claims on a principle that has been explicitly formulated as follows:

> A single linguistic segment may be identified on the basis of cues contained in more than one acoustic segment... A single acoustic segment may provide information for the identification of more than one linguistic segment (Lisker 1957a: 372).

Thus Raphael (1972) suggests that listeners seize on vowel duration differences as the only reliable cue to the perception of the phonological [±voice] distinction in the following consonant. He notes that the presence or absence of vocal cord activity in the consonant is not a consistent indication of its lexical voice value. For example, a phonologically [+voice] obstruent may often assimilate the voiceless value of a following consonant. (Compare BV /dɛd#slo/ —> [dɛ:tslo:] dead slow with /dɛt/ —> [dæt] debt.) Lisker (1957b) goes further, claiming that speakers maximise durational differences between vowels in their production in order to maximise the perceptual distance between following phonologically voiced and voiceless consonants.

In the light of findings reported in Denes (1955) this may seem a plausible hypothesis. Denes conducted experiments which show that, at least in the types of American English he was investigating, perception of the phonological voice value of a word-final consonant is not solely determined by the phonetic realisation of the consonant itself; rather it is crucially dependent on the duration of the preceding vowel. In particular he discovered that recognition of the lexical specification [+voice] in a consonant increases as the ratio of the duration of the consonant to that of the preceding vowel decreases (1955: 763). Javkin (1976) takes this perceptual difference to be due to a universal auditory constraint that may give rise to a language-specific development whereby the difference is used to form a lexical contrast which manifests itself in production. The system-specific nature of the development, Javkin notes, means that its explication lies outside the realm of phonetics. Walsh & Parker (1981) take a similar line on the interaction of perceptual and production factors. They see the length of vowels before voiced consonants, however, not as the manifestation of a lexical contrast but as the output of a phonetically motivated lengthening rule. In spite of the fact that the phoneticity of the rule is not always transparent (since lexically [+voice] consonants are often phonetically voiceless), listeners are allegedly able to acquire the rule by extrapolating from those cases where vocal cord vibration does continue into a following consonant.

There is at least one serious difficulty with accounts that seek to explain durational variation in vowels in terms of the maximisation of perceptual distance between following consonants. Recent research suggests that, while the hypothesis may be adequate as far as certain dialects of English are concerned, it is not valid for languages or other dialects of English in which vowel quantity variation is much less pronounced but no less regular. The problem concerns the limitations placed on the human capacity to perceive durational differences. Chen (1970) points out that, in the American English dialects most frequently studied, the mean difference in vowel length as determined by voiceless vs voiced following consonants is well above the difference limen (just noticeable difference) of duration. In other languages, however (Chen cites Korean, Spanish, Russian, Norwegian and French), consistently occurring durational differences conditioned by the voice value of the consonant fall on or below the difference limen. The implication is that, in some languages, durational differences between vowels are not sufficiently great to serve as perceptual cues to the lexical [±voice] specification of the following consonant. In the light of such findings, as Chen points out, maximisation of perceptual distance cannot be considered a satisfactory, generally valid explanation of the durational differences in question.

Several other functional accounts of durational variation in vowels have been advanced. Lisker (1974) suggests that the onset of arytenoid abduction in English (required for the transition from a vowel to a voiceless consonant) is timed to occur in synchrony with oral closure in order to avoid the preaspiration of voiceless stops. This obviously cannot be considered a generally applicable articulatory constraint to which appeal can be made in order to explain differences in vowel quantity, given the not infrequent occurrence of preaspiration in the languages of the world (including some types of English spoken on the 'Celtic fringe' of the British Isles). A more interesting proposal for a functional explanation of durational variation is based on the notion of compensatory temporal adjustment. Several phoneticians have suggested that there is a general processing constraint which operates during speech production to ensure a relatively even flow of syllables (e.g. Lindblom 1967; Kozhevnikov & Chistovich 1967). Given that the closure time for final voiceless stops is generally longer than that for final voiced stops, the lengthening of vowels before voiced stops is claimed to be a compensatory measure taken in response to pressure to maintain a relatively constant duration for each syllable. Experimental data, however, simply do not bear this hypothesis out. It is true that the general pattern within each English syllable is for duration of the nucleus to vary in inverse proportion to the duration of an arresting consonant (Lisker 1957b; Sharf 1962). But it is not the case that the absolute duration values of successive syllables remain constant, even when adjusted to allow for differences in tempo (see for example Chen 1970: 147).

Most other attempts at interpreting the correlation between vowel length and voicing in the following consonant have appealed to purely articulatory factors. Perhaps the best known recent account is that given in the Sound Pattern of English. Drawing on conclusions reached by Halle & Stevens (1967), Chomsky & Halle maintain that the lengthening of vowels before voiced obstruents 'can be explained on the grounds that it requires time to shift from the glottis configuration appropriate for vowels to that appropriate for obstruents' (1968: 301). Their contention is based on the notion of spontaneous voicing. In spontaneous voicing, the vocal cords vibrate in response to unimpeded airflow (characteristic of vocalic segments). Nonspontaneous voicing occurs when there is a radical oral constriction (such as that required for obstruents) which causes a build-up of supraglottal pressure, thus reducing the pressure drop across the glottis during phonation. Maintenance of the Bernouilli effect under such conditions, Chomsky & Halle claim, requires a widening of the glottal opening. The laryngeal adjustment that is needed to move from a (spontaneously voiced) vowel to a nonspontaneously voiced consonant is achieved relatively slowly, which results in a prolongation of the vowel.

Attractive as this account may seem, it has been seriously questioned by subsequent experimental research. Electromyographic and laryngoscopic measurements have failed to detect any laryngeal adjustment of the type proposed by Chomsky & Halle (e.g. Lisker, Sawashima, Abramson & Cooper 1970). In particular, we may note research by Chen (1970), in which electromyographic data were obtained on the movement of the posterior cricoid-arytenoid muscles which regulate the opening of the glottis. Chen reports that no difference was detected in the timing or intensity of signals from the muscles in question during the production of vowels before either voiced or voiceless consonants. (See Ladefoged 1971 (109-110) for further criticisms of Chomsky & Halle's notion of laryngeal adjustment.)

There have been various attempts at explaining durational variation in vowels before voiced or voiceless consonants in terms of the timing of muscular activity. One view is that length differences in vowels are effected by a difference in the timing of the onset of muscular activity in the consonant relative to the offset of activity in the preceding vowel. Voiceless consonants are held to be more strongly articulated or more 'fortis' than their voiced counterparts, involving the earlier onset of muscular activity after a vowel. It is argued that, while the duration of muscular activity in vowel production remains constant across both voiced and voiceless contexts, the fortisness of a following voiceless consonant determines shorter duration than does a voiced, 'lenis' consonant. This is essentially the view taken by Belasco (1953), Zimmermann & Sapon (1958) and House (1961). Raphael (1975) advances a hypothesis that is the converse of that just outlined. He claims that electromyographic measurements show vowels to be articulated with greater duration of muscular activity when they occur before voiced consonants than when they appear in voiceless contexts. According to this account, voiced and voiceless consonants share the same onset time of muscular activity relative to the offset of vowel activity.

Whether it is claimed that durational variation in vowels is determined by the timing of muscular activity in the following consonant or in the vowel itself, both arguments suffer from the same weakness of circularity. Given a definition of fortisness in terms of earlier closure and later release, the 'explanation' that vowels are shorter before fortis consonants is no more than a restatement of the fact for which an explanation is sought, since earlier closure simply implies a shorter vowel. This is essentially what the arguments of Belasco, Zimmermann & Sapon, and House amount to. Neither can Raphael's account be considered an explanation. While he may provide an accurate description of the muscular activity involved in the production of VC sequences, it explains nothing to say that vowels before voiced consonants are longer because speakers sustain the articulatory gesture for them longer. (See Lisker 1974 and Walsh & Parker 1981 for further criticisms of attempts to explain durational variation in vowels in terms of the timing of muscular activity.)

Several phoneticians have managed to avoid the circularity that is inherent in these arguments by seeking an underlying aerodynamic stimulus to differences in the timing of muscular activity.

Chen (1970) agrees with Belasco, House and others that vowel duration variability is the result of different rates of closure transition in following consonants. However, he goes further and suggests that this in turn is ultimately the result of differences in the level of intraoral pressure. In voiced consonants, intraoral pressure is built up in the oral cavity alone, since the volume of air in the supraglottal cavity is separated from that in the subglottal cavity by the closed glottis. Voiceless segments, on the other hand, are articulated with a larger body of air since, because of the glottal opening, both sub- and supraglottal pressure is built up. Öhman (1967) suggests that, as a consequence of the increased pressure build-up, voiceless consonants require greater muscular effort to maintain the oral constriction. Citing Öhman, Chen goes on to say (1970: 152-153):

> From the anticipatory effect of muscular effort in the closed position for voiced and voiceless consonants we may (...) infer that the transition from vowel to a voiceless consonant closure (...) would be faster than the transition from vowel to a voiced consonant closure.

The overall duration differential between vowels followed by a voiced consonant and those followed by a voiceless consonant is thus a function of the differential between the transition intervals of the two consonant types.

This account of vowel duration variability in terms of different rates of closure transition seems reasonably plausible. However, there is one potential problem that must be dealt with before the account can be accepted as a partial basis for the C-scale proposed in 2.4.4. The aerodynamic and physiological facts upon which the account rests can obviously only be appealed to if the phonological [±voice] distinction in arresting consonants is realised as a phonetic contrast of voicelessness vs full or at least partial voicing. If [+voice] consonants are produced without any vocal cord vibration whatsoever (as is the case with obstruents in some languages and dialects) but still condition greater length in a preceding vowel than do corresponding [-voice] consonants, some other explanation of vowel duration variability must be sought. This is not a problem for the analysis of BV quantity presented here, because spectrographic measurement of VC sequences reveal that BV and its hinterland dialects belong to that type of English in which final [+voice] obstruents are partially voiced (O'Prey 1976). Nevertheless, even in the case of dialects with fully devoiced final [+voice] obstruents, Chen's and Öhman's hypothesis may still be valid, provided we distinguish between the diachronic and synchronic motivation of vowel duration variability (see 2.5). It may be that, in such dialects, variation in vowel quantity was historically motivated by phonetic factors at a time when the phonological [±voice] distinction was signalled at least partly by a phonetic voicing contrast. The lengthening rule would then cease to be phonetically transparent, if the physiological voicing in final obstruents were subsequently lost. The primary perceptual cue signalling the lexical [±voice] contrast would now be the length differential in the preceding vowel (with the difference in the rate of closure transitions possibly also implicated). In other words, a length contrast that was originally conditioned by an inherent physiological feature of articulation has now become primarily a matter of linguistic structure, an acquired speech habit specific to the dialects in question.

2.6.5 <u>Vowel quantity and the manner of articulation of the following consonant</u>. In what follows, I assume the correctness, or at least plausibility, of the hypothesis that the conditioning of vowel quantity by the [±voice] feature of the following consonant is due to differences in the rate of closure transition which in turn are a function of particular aerodynamic properties of the vocal tract. I also assume that these empirical facts are partly responsible for the order of elements on the C-scale (35). However, the classification of consonants on this basis, which yields a gross [+voice] vs [-voice] dichotomy (49), needs further refinement if an accurate phonetic basis for the four-way categorisation of segments on the C-scale is to be established.

(49)

	d
t	n
s	l
	z
	r

It is not difficult to see that the additional phonetic parameter needed to fine-tune (49) to a form that coincides with the C-scale (35) involves the manner of articulation feature of the consonants. This is the remaining factor of those listed in (48) as determinants of vowel duration variability that needs to be looked at in detail.

Generally speaking, the manner feature of a consonant has been found not to play as important a role as the voicing characteristic in the determination of quantity in a preceding vowel (e.g. House 1961: 1175). Nevertheless, many phoneticians have noted the tendency for vowels to be longer, other things being equal, before fricatives than before stops (e.g. House & Fairbanks 1953; Peterson & Lehiste 1960; House 1961). There seems to be general agreement as to why this should be: '...the gradual, controlled movements of continuant consonants favor longer vowel durations more than do the abrupt, ballistic movements of the stop-plosives' (House & Fairbanks 1953: 108). Again we are dealing with rate of closure transition as a determinant of vowel duration. The relatively longer duration of vowels before fricatives is a function of the comparatively long time it takes the active articulator to perform the controlled movement required for assuming a position of close approximation with the passive articulator. With stop consonants, the closure transition from a preceding vowel is shorter, since the achievement of a stricture of complete closure does not require the same degree of muscular control as that required for a fricative. The vowel is therefore correspondingly shorter.

The feature that classifies consonants on this basis is [±continuant] defined in the Sound Pattern of English as the absence vs presence of total blockage of air in the oral tract (317). Thus fricatives and approximants are [+continuant], while oral stops, affricates and nasal stops are [-continuant]. (The problem of specifying liquids in terms of this feature is discussed below.) Splitting each mode on the [±voice] parameter (49) according to specification in terms of the [±continuant] feature yields the following provisional combined scale:

(50)

$$\begin{array}{cccc} & & d & z \\ t & s & & \\ & & n & r \end{array} \longrightarrow$$

The problematical status of nasals and liquids on Vaiana Taylor's sonorance hierarchy has already been mentioned (2.4.3). I noted that the Aitken's Law length conditions could not be expressed in terms of a sonorance scale, because they form a discontinuous class on the hierarchy. The specific problem was that nasals and laterals (Aitken's Law 'short' environments) are more 'sonorous' than voiced fricatives (an Aitken's Law 'long' environment) but less sonorous than /r/ (the other 'long' consonant). However, a strength scale based partly on the parameter of continuance gives us a reasonably unproblematical articulatory account of why nasals and /l/ should be 'short' environments in Aitken's Law and voiced fricatives and /r/ should be 'long'. The oral gesture required for nasal stops is the same as that required for oral stops, i.e. an abrupt, ballistic movement appropriate for a stricture of complete closure. This manner of articulation, as has already been pointed out, favours a shorter duration of preceding vowels. Hence nasals are an Aitken's Law 'short' environment.

The specification of liquids in terms of the continuance parameter is rather more problematical. The approximant realisations of post-vocalic /r/ that are characteristic of most Scots and HE dialects present no particular difficulty. They are clearly [+continuant] and therefore naturally a 'long' environment in those dialects that have Aitken's Law (i.e. Scots, US and MUE). Throughout the <u>Sound Pattern of English</u>, laterals are usually classified as [+continuant] (e.g. 177). This is obviously correct if the feature is defined in terms of the presence vs absence of <u>total</u> blockage of the airstream in the oral cavity. However, as Chomsky & Halle themselves point out, laterals frequently pattern phonologically with voiced plosives in some languages (1968: 318). The only example Chomsky & Halle provide comes, interestingly enough, from Scots. Without explicitly stating the Scottish Vowel Length Rule, they note that /ai/ in Scots is 'tense' before voiced fricatives and /r/ (e.g. [rajz] <u>rise</u>, [tajr] <u>tire</u>) and 'lax' before other consonants including /l/ (e.g. [rʌjd] <u>ride</u>, [tʌjl] <u>tile</u>). Other examples are not difficult to find. In many North American dialects where ME /a/ has undergone conditioned lengthening, /l/ patterns with typically 'short' following consonants such as voiceless stops, e.g. New York City (Labov et al 1972: 60ff). In conservative metropolitan French, /l/ patterns with plosives, voiceless fricatives and nasals as a 'short' following environment for those vowels that display positionally conditioned length (Armstrong 1967: 152ff). In this variety /r/ is grouped with voiced fricatives in conditioning long vowels; the length rule therefore is almost identical to Aitken's Law. In Swahili, /l/ enters into morphophonemic alternations with /d/, e.g. [ulimi] (sing.), [ndimi] (plur.) 'tongue' (Polomé 1967). In Sesotho [l] and [d] are allophones of the same phoneme, the plosive occurring only before the close vowels /i, u/ and the lateral occurring elsewhere, e.g. [hoˈdu:la] (orthographic ho lula) 'to sit', [hoˈle:ma] (ho lema) 'to cultivate'. The phonetic naturalness of such phonological behaviour can be made explicit by redefining the feature [±continuant] in terms of the absence or presence of blockage of the air flow past the primary stricture (Chomsky & Halle 1968: 318). If the location of the primary stricture is understood to be along the sagittal plane of the oral cavity, then [l] will be classified as [-continuant] since, as with [d], it is produced with complete closure at the alveolar ridge. This, as Wells (1971) points out, allows the classification of the Aitken's Law environments to be economically stated in terms of the single feature of continuance: the 'long' consonants /r, v, ð, z/ are [+continuant]; all 'short' consonants including /l/ are [-continuant].

Adopting this definition of continuance means that /l/ patterns with voiced oral and nasal stops on the combined [±voice] and [±continuant] scale:

(50')

```
                d
                      z
    t     s     n
                      r
                l
  ----------------------------->
```

It will be noted that the order of phonetically specified elements on the scale (50') corresponds exactly to the order of phonologically specified elements on the C-scale (35).

I make no claims about the universality of (50'). The C-scale seems to have general validity in its broadest outline only. I would expect the relative weightings of the polar elements t and {z, r} to be fairly constant across dialects as determinants of vowel quantity variation. It would be unlikely, other things being equal, for a particular lengthening process to affect voiceless stop environments before voiced continuant environments. On the other hand, I see no reason to assume that the relative weightings of the voicing and continuance components as determinants of vowel quantity variation should be constant across dialects or time. The generally held view is that the voicing value of a consonant plays a more important role in English than the manner feature in the conditioning of length in a preceding vowel (e.g. House 1961). This seems to be true of the present-day American dialects for which we have the most data as well as of BV and MUE generally, but evidence from the recent history of English and from other present-day dialects suggests a slightly different weighting. The Early Modern lengthening of historically short /a, o/ in dialects of the south of England occurred principally before voiceless fricatives (and /ns/, /nt/ in the case of /a/) and only sporadically before voiced noncontinuants. Thus these dialects regularly have long reflexes of /a, o/ before /f, θ, s/ (e.g. <u>path</u>, <u>pass</u>, <u>chaff</u>, <u>loss</u>, <u>off</u>) but only sporadically before /d, n/ (cf. pronunciation-spellings such as <u>gawd</u>, <u>gawn</u> for <u>god</u>, <u>gone</u>). In other words the order of elements in the central portion of the C-scale is reversed: $\underline{s} > \{\underline{d}, \underline{n}, \underline{l}\}$ rather than the BV weighting $\{\underline{d}, \underline{n}, \underline{l}\} > \underline{s}$.

Nevertheless, it still seems reasonable to make the following prediction about the order in which vowel-lengthening processes will affect different consonantal environments: given a classification of segments into two modes on the basis of either of the phonetic components that underlie the C-scale, it will be possible, other things being equal, to establish a further weighting within each mode on the basis of the other component. For example, given that a particular lengthening process affects only [+continuant] environments, the prediction is that it will affect voiced continuant environments before voiceless ones. Similarly, given that a particular lengthening process only occurs before [+voice] consonants, it is likely to apply preferentially in voiced continuant environments before voiced noncontinuant ones.

Applying this principle to the Early Modern lengthening of ME

/a, o/ just referred to, we should expect to find that the vowels are long not only before voicelss fricatives, as is generally reported, but also before voiced continuants. This is certainly true of the vowels when they occur before historical /r/: the vowels in for example car, card, for, ford are long in the dialects of southern England (regardless of whether or not they are rhotic). The reason that lengthening of the same vowels before voiced fricatives is not generally mentioned in works on the history of English is largely a question of historical accident. There are relatively few lexical items containing regular reflexes of ME /a, o/ before voiced fricatives. There are some polysyllabic items with combinations of this sort where lengthening has failed (e.g. bother, hazard, gather (but rather, father with long vowels in RP)) but this is to be expected, given that lengthening before /f, θ, s/ also generally failed in the same open-syllable environment (e.g. passage, tassel, coffin, toffee; but /ɑ:/ in castle). The failure of ME /a, o/ to lengthen before voiced fricatives in monosyllabic items is probably due to the fact that these are characteristically unstressed in connected speech (e.g. have, has, of). The historical conditions that induced length in /a, o/ are no longer productive in present-day south of England dialects, cf. recent borrowings with short vowels such as lass, gas. It is presumably for this reason that these vowels are short in words of recent origin with final voiced fricatives, e.g. Ros, Daz, Boz.

2.7 Summary

What I have attempted to do in this chapter is to demonstrate the naturalness of particular observed phonological patterns by correlating them with established phonetic parameters. Specifically, I have sought to show that the historical development and synchronic distribution of vowel quantity in BV follows a pattern that is shaped principally by articulatory factors. The steps in the argument can be summarised as follows:

(i) Two phonological hierarchies, a V-scale (36) and a C-scale (35), were established on the basis of observed vowel length distributions.

(ii) Three phonetic parameters were isolated which could plausibly be taken as underlying the observed distributions. These were, broadly speaking: vowel height for the V-scale, and the voicing and manner characteristics of segments on the C-scale.

(iii) The phonetic parameters were examined in detail to establish the mechanical aspects of speech production that might plausibly be taken as determining the order of elements on the two hierarchies. I suggest that the ranking of segments on the V-scale correlates with the degree of tongue and jaw movement involved in the articulation of the vowels. The order of elements on the C-scale, I suggest, is determined primarily by articulatory and aerodynamic differences in the rate of closure transition and secondarily by differences between controlled and abrupt muscular movements involved in the production of different manner of articulation types.

Footnotes to Chapter Two

1. I owe this southern Indiana example to Roger Lass.

2. Counterexamples to Foley's strength scales could be multiplied. In addition to the Viennese German example (21), which indicates that labials may sometimes form a weaker class than dentals or velars (in contravention of the α-scale (3)), we may note: /p/ ⟶ [h] in Kannaḍa; /p/ ⟶ {[ɸ], [ç], ∅} in Japanese; and /p/ ⟶ ∅ in Celtic. The last example also contradicts the β-scale (4), since supposedly weaker voiced labials do not undergo this lenition.

3. Certain aspects of sociolinguistic variation in the BV vowel-length conditions suggest that it may be possible to fine-tune the V-scale (28) somewhat. The refinement further confirms the pattern of correlation between articulatory height and length distribution. I have already noted (1.4.1) that for some speakers /o/ is unstable with respect to the length conditions, straddling those governing /e, əi, əʉ/ and those governing /i, ʉ/. This seems consistent with the fact that in terms of articulatory height it occupies an intermediate position between these two groups of vowels. (It will be recalled that /o/ is generally realised as relatively close [ŏ̝]: see 1.4.3.) Furthermore /a/, the lowest vowel in the system, is showing signs of variable lengthening (and backing) in contexts where /ɛ, ɑ/ (the other rank 1 vowels on the V-scale) generally remain short (see 3.6.4 for further discussion). In view of this variability, it may be possible to refine the V-scale along the following lines:

a	ɛ ɑ	e əi əʉ	o	i
1	2	3	4	5

4. It will be noted that the order of elements on Foley's *nω* scale (29) is the reverse of that on the V-scale (28). This difference is purely notational, since the *absolute* numerical values on the latter are essentially arbitrary. Since the common object of these and similar scales is to express implicational relations among segments, it is the ordering of elements *relative to one another* that is of prime importance. Given that I am not speaking of lengthening and shortening in terms of strengthening and weakening (see 2.4.1), there is no question of having to assign higher numerical values to 'stronger' segments (as Foley and Vaiana Taylor are obliged to do). The absolute values given to the elements on the V-scale (28) are justified on the grounds that this arrangement allows the most economical statement of the BV length conditions (to be presented in 2.4.5).

5. Ewen's (1977) attempt to formulate Aitken's Law in terms of

Footnote 5 (continued)

dependency phonology runs into exactly the same trouble as Vaiana Taylor's account. He sets up a 'syllabicity hierarchy' on which each element is defined as a particular combination of two basic phonatory components: one glossed as 'relatively periodic', the other characterised by 'energy reduction' (cf. Anderson & Jones 1977). The hierarchy looks something like this:

vowel
liquid
nasal
voiced fricative
voiced fricative trill
voiceless fricative trill
voiceless fricative
voiced plosive
voiced tap
voiceless plosive

This adequately handles certain lenition phenomena; but, as in Vaiana Taylor's version, it represents the Aitken's Law 'long' segments (i.e. vowel, liquid [ɹ], voiced fricative) as a discontinuous class.

Chapter Three

GROWTH OF AN URBAN VERNACULAR: SOUND CHANGE AND LEXICAL TRANSFER IN BELFAST

It has been possible for historical linguists to gain greater insights into the workings of language change by inspecting synchronic variation for signs of diachronic development in progress. In particular, phonologists have been able to investigate at close quarters some of the mechanisms that underlie changes in the systemic organisation and lexical incidence of phonemic units. Gradual sound change has been shown to manifest iself in apparent time as variation across phonetic continua or across ranges of discrete but phonetically proximate variants. On the other hand, innovations involving the redistribution of phonemes across the lexicon have been observed to proceed via sociolinguistically constrained alternation between phonologically distinct variants.

In this chapter I combine an analysis of present-day variation in BV with the technique of comparative reconstruction and the interpretation of historical records in an attempt to identify the main developments that have affected the dialect over the last 120 years or so. It is possible to demonstrate that both gradual sound change and phonemic redistribution have been in progress during this period. The redistributions, which have been proceeding through the progressive transfer of individual lexemes from one phoneme-class into another, can be shown to be taking place in response to exonormative pressures. On the other hand, the phonetically gradual sound changes apparently reflect internal evolution, which in some cases runs counter to directions associated with standard norms. The combined effect of the transfers and sound changes has been to produce a relatively more standard pattern of phonemic distribution while perpetuating a markedly non-standard pronunciation of the phonemes themselves. Through careful sifting of the comparative evidence, it is possible to disentangle the intertwining influences that the Scots- and English-derived dialects of Ulster have exerted on the growth of BV.

3.1 Sound change and lexical transfer

Recent advances in the field of what might loosely be referred to as language variation studies have made valuable contributions to our understanding of linguistic change. In particular, they have enabled us to test certain long-held views on the alleged regularity and gradualness of sound change. One message to come over quite clearly from these studies is that the neogrammarian regularity hypothesis is no longer tenable; that is, the view that sound change proceeds 'mit blinder Notwendigkeit' in response to general phonetic 'laws' and without interference from other factors. While it may be possible to establish regular historical correspondences between sets of forms as they occur before and after a particular change (and even here 100% regularity is unlikely), it has been demonstrated that change is likely to be quite irregular while it is in progress. It has long been recognised (at least since the days of nineteenth-century dialectology) that the sporadic nature of sound change to a large extent reflects a complex interaction of external factors (e.g. geographical, social) (Saussure 1974; Meillet 1921; Bloomfield 1933). More recently there has been an increasing awareness of the sorts of internal factors that inhibit uniformity in sound change. The evolution of phonological rules has been shown in many cases to be sensitive not only to phonetic but also to morphosyntactic constraints (e.g. Labov 1972b: ch 3). Further disconfirmation of the regularity hypothesis has come from studies of the sporadic diffusion of sound change across the lexicon (especially Wang 1969, Chen & Wang 1975 and the papers in Wang 1977).

It is nowadays fairly uncontroversial to speak of the gradual spread of sound change across the dimensions of geographical area, social group, the lexicon and linguistic environment. However, the manner in which change proceeds along the phonetic plane has been the source of much debate. The latter issue is often presented as a straight choice between two conflicting positions (e.g. Wang 1969), one of which assumes that all phonological change is phonetically abrupt, the other that at least some changes take place in a phonetically gradual manner. It is clear that some changes cannot be anything but phonetically abrupt. Two of the most frequently cited examples are metathesis and the replacement of apical by uvular /r/ in many European languages. The concerted effort that was made in the late 1960's and early 1970's to extend the formalisms and methods of generative phonology into historical linguistics was coupled with an insistence that all phonological change takes place in this manner, ultimately through the addition, loss, simplification or reordering of rules (Postal 1968; King 1969). This was accompanied by a vehement attack on the whole notion of gradual sound change. 'Gradual' in this context is somewhat ambiguous. It can imply that the trajectory between the input and output of a particular change is a phonetic continuum, or that it consists of a series of small increments. One of the most sophisticated formulations of the first interpretation is that of Hockett who describes sound change as proceeding by the drifting of the local frequency maxima associated with the realisation of individual phonemes (1958: ch 52; 1965). Despite attempts by generative phonologists to debunk this theory, it has been vindicated by recent quantitative studies of sound change in progress, especially those conducted by Labov and his associates. Apparent-time evidence in the shape of socially or geographically differentiated variation suggests that such changes as the centralisation of /ai/ in Martha's Vineyard or the raising of 'tense' /ǣ/ in northern cities of the United States have been proceeding by the gradual drifting of local frequency maxima (Labov 1972a: ch 1; Labov et al 1972).

It is now generally acknowledged that both phonetically abrupt and phonetically gradual change-types diffuse in a lexically gradual fashion. For example, the phonetically abrupt change whereby /x/ was replaced by /f/ in the history of English applied to an apparently random set of items (e.g. laugh, rough, cough). Other items in the same etymological set show the result of another sporadic change whereby /x/ was deleted (e.g. through, though, plough). Most recent quantitative studies of gradual sound change in progress have also recognised this type of lexical selectivity. For instance, while 'tense' /ǣ/ in New York City is generally subject to raising before anterior nasals (among other environments), there remains a residue of words that, at least for some speakers, retain 'lax' unraised /æ/ e.g. ran, swam, began (Labov et al 1972: 49-50).

The role of the lexicon in linguistic change is most clearly seen in the process of phonemic redistribution. That is, in changes where the incidence of phonemes in the lexicon is rearranged. Nobody has seriously proposed that the transfer of word-classes from one phonemic set into another might take place in anything other than a lexically gradual fashion. Traditionally, change of this sort has been regarded as quite a different phenomenon from phonological change proper, since the latter is held to involve restructuring in a way that the former doesn't. Lexical transfer has usually been ascribed to dialect borrowing, in which speakers of one dialect seek to acquire the phonemic distribution pattern of another. However, there are occasions on which no distinction can usefully be drawn between lexical transfer and certain types of phonetically abrupt phonological change. This is the case wherever the output of a reconstructed abrupt sound change is already present as an independent phoneme. It is difficult to see how this type of change could involve any mechanism that is substantially different from lexical transfer. For instance, the simplest reconstruction of the English /x/ > /f/ change already cited is to assume that members of the velar fricative set were transferred sporadically into the labio-dental set. As another example, we may consider generative reconstructions of the English Great Vowel Shift (e.g. Chomsky & Halle 1968: ch 6; Wolfe 1972: ch 3). Wolfe's account includes the changes /ē/ > /ī/ (<u>meet</u>, <u>feed</u>, etc.) and /ɛ̄/ > /ē/ (<u>meat</u>, <u>cheap</u>, etc.). The output categories in these allegedly phonetically abrupt changes are already 'given', i.e. they already existed in the English vowel system as autonomous phonological units (/ī/ originally in <u>bite</u>, <u>side</u>, etc.; /ē/ originally in <u>meet</u>, <u>feed</u>, etc.). In other words, all the reconstructed changes amount to (and it is by no means certain that this reconstruction is correct anyway) is a redistribution of /ī/ and /ē/ across the lexicon.

The supposed distinction between lexical transfer and phonetically abrupt phonological change becomes even further blurred when we consider the findings of studies of transfer in progress. These show that reallocation of lexical items from one set to another may in some cases eventually produce phonological restructuring. For example, in south Yorkshire English some items in the vernacular /ɛi/ class (mostly from

ME $\bar{e}_3$, e.g. steal, speak) are in the process of being reassigned to the standard /i:/ class (meet, feed, etc.), the remainder (from ME /ix/, e.g. night, right) to the standard /aɩ/ class (bite, side, etc.). In traditional terms, this would be described as lexical transfer by dialect borrowing, but the effect is phonological restructuring, since /ɛi/ is being lost from the south Yorkshire vowel system. (See 5.2 for a full discussion.)

Detailed analyses of lexical transfer in progress indicate that it typically involves sociolinguistically constrained alternation between discrete phonemes. That is: at stage 1, lexical set A categorically contains phoneme x; at stage 2, A alternates between phoneme x and phoneme y; by stage 3, A stablises under y. This is of course an idealised picture. What often happens in practice is that the transfer gets aborted before it is completed, so that A becomes split into two stablised sets, one containing x, the other y. Examples in present-day English of alternations which appear to be symptomatic of transfer in progress include: /ɔ̈/ ~ /ʉ/ (put, foot, etc.) in Belfast; /ʉ/ ~ /əʉ/ (cow, down, etc.) and /e/ ~ /o/ (home, toe, etc.) in Scotland; and /i:/ ~ /aɩ/ (right, night, etc.) in the northeast of England.

Most of the quantified material on transfer by alternation in English comes from British dialects, since these furnish examples in which the phonetic discontinuity between the input and output categories can often be quite dramatic (e.g. Trudgill 1974; J. Milroy 1980). That is not to say of course that similar fluctuations in phoneme-class assignment are absent from other varieties. In American English, for instance, we can think of alternations between 'broad a' (i.e. /ä:/) and /æ/ (bath, can't, etc.) in eastern New England, between 'New England short o' (i.e. /ɵ/) and more general /ou/ (road, smoke, etc.), and between /u:/ and /ɷ/ in some ME /o:/ items (e.g. roof, hoof). But it is fair to say that most of the quantitative studies of linguistic change in progress in North America have concentrated on sound change to the exclusion of lexical transfer.

The background to most sociolinguistically constrained phonemic alternation lies in the contact that occurs between standard and nonstandard varieties. The rise of received standard varieties in the English-speaking world over the last few centuries has produced situations where nonstandard regional and standard forms exist side-by-side. The pattern at the lexical-phonological level is one of socially and stylistically stratified alternation between phonetically discrete standard and nonstandard variants. Alternation of this type often reflects a move towards standardisation, which is achieved by the gradual replacement of nonstandard variants by standard ones. This process involves the reversal of historical changes that have been restricted to nonstandard dialects or the adoption of the outcome of changes that have applied in the standard. The net effect of such transfers is to bring the pattern of phonemic distribution in non-standard varieties more into line with that of the standard.

Sound change and lexical transfer in progress show up as quite different patterns in synchronic variation. On the one hand, variation may occur along a phonetic continuum (for example as an elliptical pattern of distribution in vowel space) or may take the form of a range of discrete variants in close phonetic approximation to one another. In such cases, variability is likely to reflect a gradual internal development within the dialects in question (i.e. 'evolutive' change in Andersen's 1973 sense). At least in their early stages, such developments may take the form of socially stratified change, i.e. they are sociolinguistic indicators (Labov 1972a: 178ff). The changes may subsequently penetrate above the level of consciousness and become sensitive to style shifting, i.e. sociolinguistic markers in Labov's terms. In other cases, on the other hand, sociolinguistic variation is found to consist of alternations between phonetically discrete variants whose distribution is both socially and stylistically stratified. Here the alternation may reflect lexical transfer in progress. One alternant may be the outcome of internal evolutive change within the dialect in question; the other is likely to be associated with some external, prestige variety. In such cases, variation is an indication of 'change from above' (Labov 1972a: 178ff) and stems from what was traditionally called borrowing or from what Andersen (1973) refers to as 'adaptive' change.

By comparing apparent-time evidence in BV (in the shape of present-day variation in Belfast and its hinterland areas) with real-time evidence (in the form of historical documentation), it is possible to recognise both evolutive and adaptive changes that are currently in progress and to reconstruct those that have gone to completion over the last century-and-a-half or so. The adaptive changes can be shown to be of two main types:

(a) The reversal of changes which originally occurred in EModE in general (or in some cases late ME) but which have since been aborted in SSE as well as in many nonstandard British dialects.

(b) The adoption of changes which affected British English after the arrival of British colonists in Ireland in the sixteenth and seventeenth centuries.

These adaptive changes are an indication of the influence of standard dialects on the recent development of BV. But lest the impression should be given that the recent history of BV is nothing more than an inexorable march towards RP or some similar standard dialect (cf. Lass 1976: xi), two things should be pointed out. Firstly, the adoption of recent British English developments has had much less impact on BV than the reversal of much earlier changes. Secondly and more importantly, many of the evolutive changes that are currently affecting BV can be shown to involve shifts not towards RP norms but actually away from them. This last point confirms Labov's contention that dialect diversification is continuing in the face of standardising pressures exerted by universal education and the mass media (1972a: 324; 1980a: 252).

BV has been surprisingly resistant to recently evolved standard norms in British English. For example, the dialect shows no sign of abandoning forms of strong verbs which are now nonstandard but which were once current in earlier SSE at least up until the mid nineteenth century (e.g. simple past <u>done</u>, <u>seen</u>, <u>drunk</u> for standard <u>did</u>, <u>saw</u>, <u>drank</u> and such participial forms as <u>went</u>, <u>took</u>, <u>grew</u> for standard <u>gone</u>, <u>taken</u>, <u>grown</u>). The loss of postvocalic /r/, which has now affected the majority of dialects in England, has had no impact on BV whatsoever. Nevertheless, more standardised varieties of HE have adopted some of the relatively recently evolved features of standard British English.

For example, there is a tendency among some educated speakers in Ireland (but by no means all) to diphthongise the vowel in go, coat, etc. to [ou] and the vowel in day, gate, etc. to [eɩ], a habit that seems explicable only by reference to some exonormative variety. (This diphthongisation is apparently making headway in Dublin Vernacular (Bertz 1975: 155, 167).) Even the reversal of certain EModE changes in BV appears to be motivated by a desire not so much to emulate standard British norms (or American ones for that matter) as to avoid rural stereotypes. That this is so is indicated by the results of self-report tests (e.g. O'Kane 1977) and the finding that the direction of certain vowel shifts is away from an RP-like form if this coincides with a stigmatised rural form (see J. Milroy 1982a).

In this chapter I examine in detail some of the main evolutive and adaptive changes that have occurred in BV over the last 120 years since the publication of Patterson's Provincialisms of Belfast. For ease of presentation, I have divided the changes into three categories: (a) lexical transfers involving vowel phonemes (3.5); (b) phonetically gradual vowel shifts (3.6); and (c) consonantal changes (3.7). But first it is necessary to set the scene by saying something about the external history of BV.

3.2 Growth of Belfast

Investigating the history of BV has much to contribute to our understanding of the growth of urban vernaculars in general. In the context of Europe, Belfast is a very young city, having developed from little more than a small market town to a large industrial centre in a matter of a few decades at the turn of the last century. In fact it could be said that BV is one of the youngest urban vernaculars in the British Isles. The linguistic evidence points to a rapid and recent establishment of an urban variety with characteristics that distinguish it from surrounding rural dialects.

The foundations of modern Belfast were laid in the early seventeenth century by Sir Arthur Chichester who settled it with planters from southwest England and the northwest Midlands.[1] Before that time the site was no more than a fording point at the head of what is now Belfast Lough. Built at the head of the fertile Lagan

Valley, Belfast served initially as a garrison town for the protection of English colonists. Although Scottish settlement in Belfast was at first actively discouraged, it subsequently became a dominant element in the town's population. The presence of native Irish Catholics was initially very small, and it was not until the mid-to-late nineteenth century that they came to form a significant part of the population. It was at this time that the rapid expansion of Belfast as an important industrial centre began. Some idea of the rapidity of growth can be gauged from the increase in population during the latter half of the nineteenth century (figures from Green 1952):

1851	80 000
1881	200 000
1901	350 000

No other city in the British Isles grew so large in so short a time.

The geographical distribution of Irish, Scottish and English settlement in Belfast is still reflected to a large extent in the religious affiliation of the present-day population (see Fig 3-5) in the appendix to this chapter). Episcopalians (Church of Ireland) are concentrated in the south of the city, reflecting the dominance of English settlement in the Lagan Valley. The east and north of the city, which were settled primarily from rural areas where Scottish settlement was densest (i.e. north Down and mid and north Antrim), contain high proportions of Presbyterians. West Belfast is one of the most recently settled areas of the inner city, the population here being predominantly Catholic with a background in south and west Ulster.

The present state of the dialect boundaries might suggest that Belfast was once more closely integrated into a US-speaking area that extended uninterrupted around the northeast coast from Co. Derry to north Down (see Fig 1-1 in 1.1.2). However, the historical evidence indicates otherwise. The earliest reference to the dialect of Belfast appears in Benn 1823:

> The language of the inhabitants of Belfast and its neighbourhood is generally acknowledged to be considerably pure. It is not, however, by any means, free from incorrectness, presenting both in pronunciation and in phraseology, many improprieties, most commonly Scotticisms. Towards the parishes of

> Templepatrick and Carnmoney [a few miles northwest of Belfast: JH] the Scotch accent becomes extremely harsh and disagreeable; so that it might, in some cases, be with difficulty understood by those who are accustomed to a more sonorous pronunciation (197).

Other nineteenth-century reports indicate that 'pure' used in reference to language in the north of Ireland implied 'free from Scotticisms'. Hume notes that there was a tradition until the end of the eighteenth century that 'pure English' was spoken in the neighbourhood of Lisburn, a few miles southwest of Belfast (1864: 10). This refers to a dialect that was relatively free of Scots features, reflecting the early dominance of English settlement in the Lagan Valley, including Belfast. From Benn's remarks it seems clear that, despite displaying a certain amount of Scots influence, the dialect of Belfast was not fully integrated into the US-speaking area at that time. The indications are that for a while after the Plantation the dialect was of a 'purer', more English type than is now the case. Through subsequent immigration from the Scots-speaking areas of Ulster, the immediate ancestor dialects of BV and other Lagan Valley types evolved into mixed varieties, without ever becoming completely US in type. Nevertheless, from what Benn says, it is evident that the geographical domain of US once extended much nearer to Belfast than is the case today. According to Gregg (1972), Templepatrick and Carnmoney no longer lie within the US-speaking area, the boundary between US and MUE having shifted further north since Benn's day.

Two recent developments appear to have conspired to prevent the full integration of Belfast into the US area, despite the large-scale immigration of US speakers. Firstly, the influx of Catholics from the mid-nineteenth century onwards from south and west Ulster, where the predominant non-Irish linguistic influence was English rather than Scots, reinforced the older, English features of the developing urban vernacular. Secondly, an increase in pressures towards standardisation, especially with the rise of universal education in the nineteenth century, militated against the maintenance of strongly nonstandard Scots forms.

Geographically differentiated linguistic variation within Belfast to a large extent still reflects historical settlement patterns.

The speech of east Belfast, for example, shows strong traces of its north Down US background. The variety of BV spoken in Catholic west Belfast displays features that obviously have more in common with the dialects of south and west Ulster, particularly SUE.

3.3 Reconstructing the history of BV

In the next sections, I attempt to reconstruct in its broadest outlines the internal history of BV. In doing so, I hope to show how it has evolved as a result of dialect contact. In the context of the north of Ireland, this contact can be seen as involving a compromise between typically US and SUE linguistic features. In a wider context, the contact takes place between the two typologically distinct dialect-types of English and Scots. The task I have set myself is to pinpoint specific areas of BV phonology that can be attributed to (a) an exclusively Scots source, (b) an exclusively English source, or (c) an EModE base that is common to both English and Scots dialects. Finally, I examine claims that many of the peculiarities of HE consonant phonology stem from contact between English or Scots and Irish Gaelic and consider the extent to which this might be true of BV.

Certain aspects of the internal history of BV can be uncovered by applying the classical methods of comparative and internal reconstruction. The results can be checked against the few historical records that are available to us. The sources of evidence I draw on can be summarised as follows.

(a) Comparative evidence. Present-day dialectal variation provides valuable comparative evidence with which to reconstruct the history of BV. Initially I will focus attention on social and stylistic variation within modern BV, then on the dialects of Belfast's rural hinterland (particularly SUE and US), and ultimately in wider perspective on the direct descendants of the source dialects in England and Scotland.

(b) Internal reconstruction. The usual source of evidence that is drawn on in internal reconstruction is of course morphophonemic alternation, on the basis of which unified historical 'base-forms' can be recovered. For various reasons this type of alternation in BV is not particularly useful for our purposes. For one thing, most of the major morphological alternation types in English were already well established by the seventeenth century when HE was in its early stages of development. Alternations such as those in vain ~ vanity, sleep ~ slept, physical ~ physician are common to all modern dialects of English. However, two other types of alternation provide us with valuable internal evidence in the reconstruction exercise. These in fact take us beyond the domain of allomorphy which is the only source of data that is normally exploited in 'classical' internal reconstruction. Firstly, there is sociolinguistically constrained phonemic alternation (e.g. variation between /ɔ̈/ and /ʉ/ in words like foot, put, full). Secondly, there is allophonic alternation which, as we saw in 1.4.3, can involve phonetically quite distinct variants in BV (e.g. [ɛ:] ~ [æ] in /ɛ/ : [bɛ:d] bed vs [bæt] bet).

(c) Historical records. Historical records of BV of a specifically linguistic nature are rather sparse. As far as I know, there is nothing available that was written before the mid-nineteenth century. It is probably true to say anyway that BV was not recognised as a distinctive dialect much before this date. This is to be expected, given the relative youthfulness of Belfast as a city. Of particular value is Patterson's The provincialisms of Belfast and the surrounding districts pointed out and corrected (1860). Despite being designed for purely prescriptive purposes, Patterson's booklet provides us with a remarkably detailed description of mid-nineteenth century BV phonology. The accuracy of his observations is supported by comparative evidence from present-day rural MUE dialects. Unfortunately for my purposes, Patterson does not concern himself with questions of vowel length, although he does provide an extremely clear and, as far as we can tell, accurate account of Aitken's Law as it conditions quality variation in the diphthongs of the DIE and DYE classes. Two later, descriptive works are also useful. Staples' 'Notes on Ulster English' was published in 1898 but was based on notes made twenty years earlier. Although he provides valuable details on the quality of BV vowels at his time, the reliability of his descriptions of vowel length is unfortunately doubtful. As a non-native who was apparently unfamiliar with the Scots-type pattern of conditioned vowel quantity, he seems to have made the same mistake as the English Dialect Dictionary fieldworker already referred to in connection with Co. Antrim US (1.2.1) by imposing a southern English pattern of phonemic length on his transcription of BV. Williams' 'Remarks on northern Irish pronunciation' (1903) is more accurate in this respect. Although he concentrates on the description of educated speech, Williams, a native of Belfast, frequently refers to uneducated pronunciation. I will also make reference to Our Ulster accent and Ulster provincialisms (1897) by 'One Who Listens' (probably F.J. Biggar). Biggar was not averse to expressing the odd subjective judgement on Ulster speech. (He describes the BV vowel in to as the 'softened down, half-suppressed, hoarse cough of a calf'.) Nevertheless, his pamphlet provides some useful supporting material for the more important contemporary works. I have also consulted the authorities on the history of English and drawn on their interpretations of the historical records.

Bearing in mind the points of external history that I have mentioned, I wish to make the following specific claims regarding the internal development of BV:

(i) The vowel system of BV was initially more English in type and therefore resembled that of SUE more than is the case today.

(ii) The originally English system has subsequently been modified by the superimposition of Scots-type features.

(iii) Large-scale variation within the vowel system of present-day BV is the result of a complex interaction between the competing influences of English and Scots features.

(iv) This variation is symptomatic of linguistic change in progress.

(v) The direction of change, which can be established on the basis of comparative and documentary evidence, suggests that rural patterns of phonemic distribution are in decline but that Scots features are in the ascendancy at the allophonic level.

3.4 Competing norms and linguistic change in BV

It is possible to recognise in the development of the BV vowel system both adaptive and evolutive changes that have occurred over the past 120 years since the publication of Patterson's Provincialisms of Belfast. On the one hand, there has been a wholesale transfer of lexical items from nonstandard vowel classes into standard classes. From a study of present-day linguistic variation in Belfast, it is evident that this type of change has involved stages during which individual items alternate between a standard and a nonstandard vowel phoneme. For example, the class of items that includes pull, put, foot, etc. alternates between the vowel categorically found in the pool class (i.e. /ʉ/) and that of the dull class (i.e. /ɔ̈/). The second type of change has occurred at a subphonemic level and has largely left the pattern of phoneme class membership undisturbed (with a few notable exceptions). An example is provided by the diffusion of mid allophones of /ɛ/ (bed) into more and more phonetic environments, replacing an apparently older, low realisation.

It is possible to interpret the direction of these two change-types in terms of the competing influences of Belfast's main hinterland dialect-groups. The transfer of lexical items into standard phoneme classes has resulted in the abandonment of typically rural patterns of distribution. This has inevitably affected nonstandard Scots features most, so that the present-day incidence of BV vowels looks more like that of SUE or SUS than that of CUS. That is not to say, however, that SUE represents the target in the direction of which the more Scots-influenced dialects in the north of Ireland standardise. On the contrary, SUE is associated with low prestige in relation to BV. It was the variety spoken by the last large immigrant group in Belfast, Catholics from south and west Ulster. Its low prestige probably stems in part from the fact that, being the most recent of the Ulster hinterland dialects to enter Belfast, it is associated more with rural stereotypes than the longer-established northeastern varieties, i.e. MUE and SUS. The reallocation of lexical items from nonstandard Scots vowel classes into standard classes appears to be in response to exonormative pressures, presumably from Britain. On the other hand, the direction of the subphonemic vowel changes referred to reflects the covert prestige accorded more Scots-influenced varieties within Belfast. For example, the shift from short low to long mid realisations of /ɛ/ appears to be away from an older, English (and therefore SUE-like) variant towards a typically US variant.

The competing influences of the various rural hinterland dialects in Belfast can only be understood by taking into account the political forces that have been at work in the north of Ireland. Industry and regional government have long been controlled by British and local Protestant interests. A long history of discrimination against Catholics in all areas of economic and political life has led to the growth of a Protestant labour aristocracy (see James Connolly 1910). The loyalty of members of the Protestant working class to the colonial power has been secured by granting them marginal economic privileges over their Catholic fellow-workers. From the start of the Industrial Revolution, skilled jobs in shipbuilding, linen and tobacco were reserved almost exclusively for Protestants. In practice this has meant that more and better jobs have been concentrated in areas where the Protestant population is in an overwhelming majority (especially in east and north Belfast). Recent figures confirm that the areas of highest unemployment in Belfast (as much as 60 per cent of the working population in some wards) coincide with areas containing the highest concentration of Catholics. This pattern is particularly noticeable in west Belfast (compare Fig 3-5 with Fig 3-6 in the appendix to this chapter).

Recent sociolinguistic studies of Belfast indicate that a working-class covert prestige variety has developed in the city (L. Milroy 1980). It should come as no surprise to find that this variety is associated with areas where there is higher employment and a greater concentration of skilled jobs, i.e. Protestant east and north Belfast. As has already been pointed out (3.2), east and north Belfast were predominantly settled from the US-speaking areas of north Down and mid and north Antrim respectively. Catholic west Belfast drew most of its population from south and west Ulster. This has meant that the working-class prestige variety of BV shows clear US influences, whereas west Belfast BV shows more traces of stigmatised SUE features. While external standardising pressures have led to the gradual decline of nonstandard rural patterns of phoneme distribution, the covert prestige of the variety associated with the labour aristocracy manifests itself as a shift towards more typically Scots allophony. What this means in effect is that the phonemic incidence of BV has become more standardised, while the 'accent' has become more Scots.

3.5.0 Lexical transfer of BV vowel classes

3.5.1 Introduction. In this section I summarise the main lexical transfers that have affected the distribution of vowel phonemes in BV over the last century and a half or so. By checking Patterson's (1860) record against studies of present-day variation, it is possible to identify which of these transfers are complete. In those that are not yet complete, it is possible to quantify the extent to which each has progressed. What is remarkable is the resilience of some of the older classes in the face of standardising pressures. Hardly any of the nonstandard phoneme classes listed by Patterson have completely disappeared. Nevertheless, it is clear that several of the nonstandard classes which apparently had a vigorous existence in Patterson's time have now developed into stereotypes whose occurrence is socially and stylistically very restricted.

3.5.2 The POUCH class. One nonstandard class that has completely disappeared from present-day BV consists of words that contain an undiphthongised reflex of ESc /u:/. This pronunciation appears to have been retained in mid-nineteenth-century BV, especially before /tʃ/: Patterson transcribes the nuclei of pouch, slouch, couch, crouch as oo, indicating a high monophthongal realisation that is clearly Scots in origin via US. All these items categorically have /əʉ/ today.

The exact backness value of the vowel Patterson writes as oo is not immediately clear. He uses the same digraph in the transcription of items that have central /ʉ/ in present-day BV, e.g. tour, sluice. Comparative evidence, however, sheds some light on the matter. There is no trace of fully back pronunciations of this vowel in any dialect spoken in the north of Ireland. Indeed, as already indicated in 1.1.2, this is one of the main characteristics that distinguish northern from southern HE. The descendants of the main British source dialects have advanced realisations of the equivalent vowel: in the southwest and northwest of England (Orton, Sanderson & Widdowson 1978: maps Ph 138-142) and to a certain extent in Scotland (Grant & Dixon 1921: 49; Wettstein 1942: 3; Zai 1942: 11; Catford 1957: 111). Central realisations are also characteristic of Irish /u:/ in Ulster (see Holmer 1942, Wagner & Ó Baoill 1969). It would be surprising in the light of this comparative evidence if the quality of the nineteenth-century ancestor of BV /ʉ/ was much different to that of today.

3.5.3 The DYE and DIE classes. Patterson gives a very detailed account of Aitken's Law as it affects the reflexes of ME or ESc /i:/ and /ai, ei/ (1860: 20-22). He identifies a pattern of quality variation in these vowels which is immediately recognisable as typical of present-day SUS. He describes the 'long i sound' as consisting of the vowel in far followed by the vowel in me. Although it is not possible to interpret the exact backness value of the vowel in far from Patterson's account (comparative evidence from rural Ulster and Scots dialects suggests anything from fully front to fully back), it is clear that a low quality is intended, i.e. [ai], [äi], [ɑi], or the like. This sound, Patterson says, occurs word-finally (tie) or before /r, v, ð, z/ (hire, five, blithe, despise). He goes on to describe a 'peculiar' sound which is composed of the vowel in there followed by the vowel in me. Elsewhere he gives a fairly detailed description of the vowel in there which can be interpreted as varying between mid front and mid central (1860: 19). The 'peculiar' diphthong was therefore probably something like [ɛi], [ɛ̈i] or [əi]. This vowel, according to Patterson, appears before consonants other than those referred to under 'long i', e.g. spite, twice, side, pine, vile. The initial impression to be gained from this description is that the two i-sounds are in complementary distribution and that their occurrence is entirely conditioned by Aitken's Law. However, Patterson provides a list of 'peculiar i' items which includes occurrences of this diphthong in morpheme-final position (e.g. eye, die, sigh, lie, nigh) as well as a few sporadic instances before /r/ or /v/ (e.g. wire, knives, wives, Ireland). The following minimal pairs appear on his list:

(1)

'Long i'	'Peculiar i'
I	eye
I'll	isle
dye	die
dyed	died
pried	pride
tied	tide
mine (poss.)	mine (n.)

In other words, BV in 1860 had a marginal contrast between /äi/ (or some similar diphthong with an open onset) and /əi/ (or something similar with a mid onset), where present-day BV has a single phoneme. The situation in mid-nineteenth-century BV is almost identical to that in present-day SUS (as outlined in 1.2.4). The US source of the /äi/ : /ᵊi/ contrast is confirmed by the fact that no such opposition is found in SUE. In present-day BV there is still a phonetic contrast between a diphthong with a mid nucleus (generally [ɛi] or [ei]) and one with a low nucleus ([aːᶦ] or [æːᶦ]) in the classes of words that contained /əi/ and /äi/ in Patterson's day. However, the contrast has since been dephonologised: the low-nucleus diphthong now regularly occurs in word-final position, while the mid-nucleus variant appears in all other environments.[2]

3.5.4 <u>The MEAT class</u>. Patterson provides a long list of items (over 100 in all) which contained a mid reflex of ME /ɛː/ at his time. The length of the list suggests that in basic mid-nineteenth-century BV the ME /ɛː/ class (MEAT) was more or less intact and distinct from the ME /eː/ class (MEET) with which it has merged in most present-day English dialects. The position in present-day BV is that the class is very much in recession. Of the 100-odd MEAT items listed by Patterson only around 35 can still be heard with a mid vowel. Moreover, none of these words categorically contains the mid variant. All of them alternate between the nonstandard mid vowel and a standard pronunciation with /i/, merging with MEET. The most commonly occurring MEAT items, all of which appear in Patterson (with the exception of <u>Jesus</u>), are:[3]

(2)

beat	leave	beast
Jesus	beak	steal
decent	cheap	team
meat	eat	lean
peace	seat	speak
tea	creature	neat
mean	weave	leak

The mid variant has taken on the status of a stereotype in present-day BV, its use being restricted to inner-city working class speech in intimate settings. That it has not completely disappeared is probably an indication of the strong connotations of vernacular solidarity that are associated with it.

Patterson's orthographic representation of the mid vowel in MEAT words suggests that it was merged with /e/ (the MATE class). Thus *meat*, *please*, *weak* are written *mate*, *plays*, *wake*. Close study of the vowel in present-day BV, however, reveals that the MEAT and MATE vowels overlap but are potentially distinguishable by a height difference. I take this question up in detail in 4.3. (See also Milroy & Harris 1980 for a full discussion.)

The MEAT class in Patterson's day included items that have been assigned to the ME /e/ class (MET) in standard dialects through earlier shortening. Thus *sweat*, *endeavour*, *weapon*, *threat*, *lead* (n.), *treacherous*, *peasant* all contained the same mid vowel as occurred in *meat*. All of these items have since been categorically transferred into the MET class (/ɛ/) in modern BV.

3.5.5 *The PUT and FOOT classes*. As noted in 1.4.2, the distribution of /ʉ/ and /ɔ̈/ in present-day BV involves three lexical sets, e.g.:

(3)

(a) BOOT	(b) BUT	(c) PUT/FOOT	
/ʉ/	/ɔ̈/	/ʉ/ ~ /ɔ̈/	
boot	but	put	foot
food	cud	full	look
good	blood	pull	took
goose	fuss	butcher	shook

The BOOT class categorically contains /ʉ/; the BUT class categorically has /ɔ̈/. The PUT/FOOT class alternates between prestige /ʉ/ and vernacular /ɔ̈/. The /ɔ̈/ variant of the PUT/FOOT class has two sources: ME /u/ through lowering (the PUT class), and ME /o:/ through raising, shortening and lowering (the FOOT set). The most frequently occurring of these items in present-day BV are:

(4)

(a) PUT		(b) FOOT	
bush	bullet	shook	could
bull	pull	took	would
butcher	full	foot	should
pudding	put	stood	woman
pull	push	look	
pulpit	pussy		
cushion			

It will be noted that all of the words in (4a) except one (*cushion*) contain initial labials. This is the environment which, according to your view, either prevented the lowering of ME /u/ in SSE (e.g. Ekwall 1975: 52; Dobson 1968: 720ff) or reversed it (e.g. Wyld 1920: 232ff). The evidence from BV tends to favour the latter version of events. The Ulster source dialects of BV appear to have become separated from developments in Britain after the lowering of historical /u/ was well underway but before the process was reversed in labial environments. This suggests that if the lowering was already in progress by the sixteenth century, as some of the authorities assume (e.g. Ekwall 1975: 51), its partial reversal in England must post-date the main early seventeenth-century colonisation of Ireland.

The PUT/FOOT class has proved to be remarkably stable over the last 120 years. Of the 34 items mentioned by Patterson as having /ɔ̈/, only four now categorically have /ʉ/ in BV: <u>wood</u>, <u>hood</u>, <u>soot</u>, <u>wool</u>. Nevertheless, the /ɔ̈/ variant was already stigmatised at least a century ago: Staples describes the /ʉ/ alternant as 'genteel' and notes that /ɔ̈/ is a typically 'country' pronunciation (1898: 370). The low variant now has all the characteristics of a stereotype in Belfast, its occurrence being restricted to inner-city working-class speech and informal styles (see Maclaren 1976).

The rate at which BV PUT/FOOT words are undergoing transfer into the BOOT class is to a large extent sensitive to the historical class membership of each item. Words that contained ME /o:/ (the FOOT set) show a greater propensity to transfer into the BOOT class than do items that contained ME /u/ (the PUT set). This is true of transfer over time: three of the four words that had /ɔ̈/ in Patterson's time but now categorically have /ʉ/ (<u>wood</u>, <u>soot</u>, <u>hood</u>) belong to the FOOT set. The skewed distribution of the transfer manifests itself more clearly in present-day style-shifting. Drawing on material from the sociolinguistic study of three inner-city Belfast communities, J. Milroy (1980) notes that FOOT items are almost categorically reassigned to the BOOT class in more formal styles, whereas PUT items are more resistant to the transfer (see Tab 3-1).

Tab 3-1. % occurrence of /ɔ̈/ in PUT/FOOT items in three inner-city Belfast communities (figures from J. Milroy 1980).

	PUT	FOOT
Conversational style	60	34
Formal style	30	0.4

J. & L. Milroy suggest that systematic aspects of the writing system contribute to the greater propensity of FOOT items to be transferred into the BOOT class in formal styles than PUT items (1977: 19-20). However, it is difficult to see how phono-graphic rules should influence speakers in inner-city communities such as those studied in Belfast where there is a high level of illiteracy and where reading aloud cannot be regarded as part of the everyday linguistic repertoire. I think it more likely that the differential behaviour of the PUT and FOOT sets with respect to transfer is the result of a complex interaction between the different dialect-groups of Belfast's hinterland.

I have already noted the unstable distribution of ME /u/ and shortened /o:/ reflexes in SUE (1.3.2). In this dialect, the alternation between /ɷ/ and /ɔ̈/ cuts across the historical /u/ : /o:/ distinction. Thus both <u>push</u> (< ME /u/) and <u>foot</u> (< ME /o:/) fluctuate between /ɷ/ and /ɔ̈/. The situation in US is quite different. The regular development of ESc /u/ in present-day Scots dialects is /ʌ/ (equivalent to MUE and SUE /ɔ̈/). Thus CUS has this vowel for example in <u>bullet</u>, <u>cushion</u>, <u>push</u>, <u>butcher</u> (Gregg 1959). (An alternation exists between /ʌ/ and /ʉ/ (or /y/ in some Scots dialects) in words with historical final /l/, the result of a sporadic vocalisation of the /l/ and consequent lengthening of historical /u/, e.g. CUS [pʌl] ~ [pʉ:] <u>pull</u>.) ESc /o:/, on the other hand, has been regularly fronted (to /ø:/) and generally unrounded (to /ɪ̈/ in CUS). Gregg mentions <u>foot</u>, <u>hood</u>, <u>soot</u> as having /ɪ̈/ in Co. Antrim CUS (1959: 404). Similar developments of ESc /u/ and /o:/ are reported for central and southern Scots. East central Scots, for instance, has /ɪ̈/ in <u>foot</u>, /ʌ/ in <u>push</u>. Wilson describes the following distribution pattern in Ayrshire and central Scotland (1923: 31, 33; 1926: 34-35):

(5)

ESc /u/ /ʌ/		ESc /o:/ /ɪ/	
bush	fully	foot	should
bull	pudding	stood	would
bullet	bushel	soot	
butcher	cushion		

The situation in southern Scots looks very similar (Wettstein 1942; Zai 1942):

(6)

ESc /u/ /ʌ/		ESc /o:/ /ë/ or /ɵ/
bull	pull	hood
bush	bullock	foot
put	push	soot
full	pudding	

The pattern of lexical transfer whereby CUS /ʌ/ and /ɪ̈/ words are reassigned to standard classes in SUS looks like this:

(7)

CUS		SUS
ɪ̈	foot → ʉ	ʉ
	blood → ʌ	
ʌ	push → ʉ	ʌ
	cut → ʌ	

This transfer involves an alternation between conservative /ʌ/ and standard /ʉ/ only in items that contained ESc /u/ (e.g. push, butcher, bullet). Words that had ESc /o:/ alternate between conservative /ɪ̈/ and standard /ʌ/ (e.g. blood, flood) or between /ɪ̈/ and /ʉ/ (e.g. foot soot). At no point in the transfer does the ESc /o:/ class show an alternation between conservative /ʌ/ and standard /ʉ/, which would correspond to the BV alternation between /ɔ̈/ and /ʉ/ in FOOT items.

While the /ɔ̈/ alternant in the BV PUT class may owe its origins to both US and SUE, it looks very much as though the same vowel in the FOOT set cannot have a Scots source. It is likely therefore that the latter alternant has an English background, either in the older, pre-Scots dialect of Belfast or in SUE or both. This becomes clear when we examine evidence from the history of SSE as well as from variation in present-day dialects of England. Wyld cites documentary evidence which shows that historically long /u:/ from ME /o:/ in most of the

FOOT items on Patterson's list had been shortened during the sixteenth and seventeenth centuries in at least some varieties of southern English (1920: 237). Assuming that the lowering of ME /u/ was productive for at least part of this period (as for instance Dobson (1968: 585) and Kökeritz (1953: 240) do), it is clear that some words with raised and shortened ME /o:/ were free to participate, albeit sporadically, in the lowering process. Thus blood and flood have /ʌ/ in modern RP and virtually all southern-English-derived dialects (such as those of the United States). There is evidence that other ME /o:/ items occurred with a lowered vowel but have subsequently been categorically assigned to the RP /ʊ/ class. From historical records, it appears that both ME /u/ and shortened /o:/ words had alternating lowered and unlowered vowels for some time in SSE. Writing in 1701, Thomas Jones notes the ME /o:/ items foot, hood, stood, took with both variants (see Wyld 1920: 237). Relic forms with the lowered variant where RP now categorically has /ʊ/ survive in a few areas of England. The Survey of English Dialects records foot (Survey questionnaire references VI.10.1 and VI.10.10) and look (III.13.8, VIII.1.23) with /ʌ/ in parts of the southeast Midlands and the West Country (Orton & Barry 1969; Orton & Tilling 1969).

Given the English source of the /ɔ̈/ variant in the BV FOOT class, the pronunciation is likely to be associated with low-status varieties that have a relatively recent SUE background (especially west Belfast). The /ɔ̈/ alternant of the PUT set, on the other hand, has roots in the longer-established varieties that have a predominantly US background (especially east Belfast). It would be natural for this vowel to take on the covert prestige that is associated with these varieties. This would presumably afford greater protection to PUT items than to FOOT items against transfer into the BOOT class.

3.5.6 The YES class. An alternating class that is similar to PUT/FOOT in present-day BV includes the vowels /ɛ̈/ and /ɛ/ which are distributed across three lexical sets, e.g.:

(8)

(a) LESS	(b) KISS	(c) YES
/ɛ/	/ɛ̈/	/ɛ/ ~ /ɛ̈/
less	kiss	yes
let	fit	get
fed	bid	never

The LESS class categorically has /ɛ/; KISS categorically has /ɛ̈/. The YES set alternates between /ɛ/ (the prestige variant) and /ɛ̈/ (the vernacular variant). (The alternants are phonetically quite discrete: /ɛ/ is generally [ɛ:$^{\text{ə}}$] when long and [æ] when short, while /ɛ̈/ (which is always short) varies on a continuum from [ɛ̈] to [ι].)[4]

The YES class is clearly recessive. Of the 32 items listed by Patterson, at the most nine still appear (at least variably) with /ɛ̈/, the remainder having been transferred categorically into the LESS set. All the YES items on Patterson's list contained ME /e/ raised to historical /i/ in the British dialects, both Scots and English, that formed the basis of early-seventeenth-century HE. The favouring environments in the raising process were following alveolars or dentals and /v/. Almost all the YES items on Patterson's list are of this type:

(9)

(a) _ /d, n, l, ð, r/

red	twenty	whether	jerk
ready	engine	together	kernel
sheltie	bench	brethren	cherry
shelter	many		bury

(b) _ /t, s, v/

yet	yes	yesterday	devil
jet	bless	ever	never
get	chest	every	clever
			crevice

(c) elsewhere

next	measure	premises

The raising was no longer productive in Patterson's time, for he lists plenty of items with /ɛ/ rather than /ɛ̈/ before alveolars (e.g. send, dress, yellow). However, the categorical transfer of YES items into the standard LESS class does show signs of phonetic conditioning. The environments that have been least resistant to the transfer are following /d, n, l, ð, r/. None of the words in (9a) now appears with /ɛ̈/ in BV (nor do those in (9c)). Following /t, s, v/ have been rather more successful in maintaining the /ɛ̈/ alternant. Of the items in (9b), yes, yesterday, yet, get, ever, every and never still regularly alternate between /ɛ/ and /ɛ̈/ in BV. Devil and bless with /ɛ̈/ are now stereotypes.[5]

For Co. Antrim CUS, Gregg (1959) records a large number of words with /ä̈/ (corresponding to BV /ɛ̈/) which originally contained ESc /e/, including most of the items on Patterson's list. Scots influence on the BV YES class cannot be considered exclusive, however, for similar alternations are to be found in all the hinterland dialects of Belfast, and indeed throughout HE, both northern and southern. The vowel /ɩ/ (equivalent to BV /ɛ̈/) is recorded for ME /e/ before alveolars and /v/ in Roscommon (Henry 1957: 76), Dublin (Bertz 1975: 117) and west Cork (Lunny 1981a: 52). It is clear that the EModE raising of historical short /e/ was well established throughout Britain before English was introduced into Ireland on a large scale in the sixteenth and seventeenth centuries. The early raising of ME /e/ before velars (completed by 1500 , according to Dobson 1968: 567) has not been reversed (hence <u>wing</u>, <u>fling</u>, <u>England</u>). However, a later raising in other environments, particularly before alveolars and /v/, only applied sporadically and was eventually aborted in SSE. Nevertheless, there is ample evidence in sixteenth- and seventeenth-century records of /ɩ/ < ME /e/ occurring in these environments (see Wyld 1920: 222; Kökeritz 1953: 186ff; Dobson 1968: 567ff for examples), which confirms that the raising was not fully reversed until after the major colonisation of Ireland. Almost all of the YES items on Patterson's list appear in these historical texts with the raised vowel.

The raising of ME /e/ has not been entirely reversed in all British dialects. For southern Scots, Wettstein (1942: 38) and Zai (1942: 38) record /ɛ/ or /ɛ̈/ (the regular reflex of ESc /i/) in a number of ESc /e/ words (the regular reflex of the latter being /a/ or /æ/ in these dialects), e.g. <u>get</u>, <u>yesterday</u>, <u>cherry</u>, <u>together</u>. A similar picture is provided by Wilson for southwestern and central Scots (1923: 26; 1926: 28). Interestingly enough from the point of view of the historical linguistic connection between southwest Scotland and the north of Ireland, all the ESc /e/ items noted with the vowel in <u>fit</u> by Wilson for central Ayrshire crop up on Patterson's list. The modern Scots evidence confirms that the raising of ESc /e/ to /i/ predated the centralisation and lowering of high short vowels, since raised ESc /e/ has clearly participated in the latter change.

In England too, examples of ME /e/ raised before alveolars and /v/ are still plentiful. The Survey of English Dialects records /ɩ/ in shelf (Survey reference V.9.4), yesterday (VII.3.8), yes (VIII.8.13), every and never (VII.8.19) and get (VI.2.2) predominantly in the north of England but also less commonly in the extreme south. This pronunciation is still current in some American dialects (Kurath & McDavid 1961: 135).

3.5.7 The DOOR class. The authorities are generally agreed that ME /o:/ had reached the stage of [u:] by the end of the fifteenth century (Ekwall 1975: 44; Dobson 1968: 681). (Wyld, as is often the case, puts it somewhat earlier (1920: 234).) Most also agree that initially this raising had regularly included ME /o:/ before /r/ where the vowel merged with the undiphthongised reflex of ME /u:/ (so that moor rhymed with pour). Subsequently [u:] before /r/ reverted to [o:] in many words, eventually to emerge as /ɔ:/ in modern RP. (For some varieties at least, it is probably fair to assume that there was an inhibition of raising rather than a reversal.) The lowering of historical /u:/ before /r/ was, however, not completely regular in SSE, as the relic forms boor, poor, moor with /ʊə/, /ɣ̈/ or some similar vowel in some modern southern English and related dialects show (e.g. United States varieties and conservative RP). (In many types of current British English, however, these words regularly have lowered reflexes.) While the lowering before /r/ was in progress during the seventeenth century there existed, according to the records, a fair number of words that alternated between [u:] and [o:] (see Ekwall 1975: 44; Kökeritz 1953: 239; Dobson 1968: 738ff for examples). This is exactly the situation that obtains in all present-day rural HE dialects bar US. According to Patterson, mid-nineteenth-century BV had unlowered /ʉ/ in board, coarse, door, floor, course, court which alternated with 'correct' /o/. The /ʉ/ variant in these words has all but died out in present-day BV, although relic forms persist in jocular usage. So recessive is the DOOR class in BV that it was impossible usefully to quantify its occurrence in 150 hours of tape-recorded Belfast speech. The /ʉ/ alternant in board, door, etc. is now a well-known rural stereotype that is specific to non-US dialects in Ireland. It appears to be exclusively English in origin. There is no mention of this pronunciation in descriptions of southern and central Scots (Wilson

1926; Wettstein 1942; Zai 1942), since ESc /o:/ was fronted before /r/ as in other environments, showing up in modern Scots as [e:], [ø:] or some similar front vowel.[6] Gregg's phonological questionnaire, designed to establish the boundaries between US and MUE, includes the items floor, board, door, poor, which regularly appear as [fle:ɾ] or [flë:ɾ] in CUS areas but as [flʉ:ɾ] or [flo:ɾ] in MUE areas (1963: 35; 1972). Unlowered reflexes of historical /u:/ in these words are also reported for the English-derived dialects of southern HE (Henry 1957: 77; Hogan 1927: 66). Finally, to emphasise the English origins of this pronunciation, we may note that the Survey of English Dialects records /u:/, /ʊə/, or some similar high round nucleus in door (reference V.1.8) and floor (V.2.7) in parts of the north and southwest of England.

3.5.8 The COLD class. In conservative BV, /əʉ/ occurs in a number of words that generally have /o/ in more standardised pronunciation, e.g. old, hold, cold (the COLD set). In most modern Scots dialects these items show up with /ɑ:/ or /ɔ:/ (hence spellings such as auld, cauld), reflecting a development from ESc /al/. ESc /a/ before /l/ generally fell together with /au/, the lateral vocalising except before /d/ in most dialects, so that all = aw ('to owe') (see Aitken 1977 for details). ESc /ol/ (as in knoll, folk) meanwhile generally merged with /ou/ (as in grow, loup) to give modern /ʌʉ/ or the like. In non-northern dialects of English the development was different: from OE eald /æɑld/ the progression was probably something like æld /æld/ > ald /ɑld/ > [ɑ:ld] > early ME /ɔ:ld/ > [ɔ:ɫd] > [ɔuɫd] > /ould/. The regular modern reflex of the vowel in ME /ould/ is the same as that in owl, which is what we get in many nonstandard dialects including HE; but SSE and related varieties now have the vowel of coal in this set. (More on the historical background to this shortly.) Some modern Scots dialects show a development of the vowel in the COLD class that is similar to that in southern types. In Galloway and parts of northeast Scotland, for instance, we find /əʉ/ or /ʌu/ in this set, which indicates a merger of ESc /ald/ with /ould/ (Milroy 1982b: 25). This is also the pattern found in CUS (Gregg 1959: 418).

Thus we can generalise for all types of HE, regardless of whether they have Scots or English backgrounds, and say that conservative speech retains a diphthongal reflex of ME /ou/ in the COLD class. In northern HE this is generally /əʉ/; in southern HE it is /əu/, /ö͡ɷ/ or the like (Henry 1957: 34; Bertz 1975: 125).

ME /ou/ had generally fallen together with ME /ɔ:/ in SSE by the end of the seventeenth century (Ekwall 1975: 47; Dobson 1968: 804). The historical records indicate that monophthongal and diphthongal reflexes of ME /ou/ alternated with one another during the sixteenth and seventeenth centuries in SSE. The diphthongal alternant disappeared earliest in word-final position, according to Dobson's interpretation of the evidence (1968: 805). It appears that this alternant persisted longest in the context of following /ld/, and this certainly was the pronunciation that was introduced into Ireland in the seventeenth century. The older, diphthongal variant still occurs before /ld/ in the West Country and the northeast Midlands, according to the Survey of English Dialects which records <u>old</u> (VIII.1.20) and <u>cold</u> (VI.13.17) with the same diphthong as in <u>owl</u> in these areas. ME /ou/ remains distinct in all environments in some conservative dialects of East Anglia (Chambers & Trudgill 1980: 38).

Patterson lists 18 ME /ou/ items that were pronounced with /əʉ/ in mid-nineteenth-century BV. All but five of these have since undergone categorical transfer into the BV /o/ class. Those words that do retain the diphthong (<u>old</u>, <u>cold</u>, <u>told</u>, <u>hold</u>, <u>bold</u>) alternate with a standard /o/ pronunciation. The diphthongal variant is now very much a rural stereotype in Belfast, its occurrence being restricted for the most part to familiar, jocular usage. The occurrence of the adjectives <u>old</u> and <u>bold</u> with the /əʉ/ alternant is further constrained by the linguistic context. These nonstandard forms now only appear in attributive position, never in predicative contexts. (Thus <u>the /əʉl/ man</u> is still possible, but <u>the man is /əʉl/</u> is unlikely.)[7]

3.5.9 <u>The BRICK class</u>. Patterson decries the use of BV /i/ (the vowel in <u>feet</u>) in a set of words which contain the vowel of <u>fit</u> in standard pronunciation. In the majority of cases, the nonstandard variant appears to derive from ESc /e:/, e.g. <u>brick</u>, <u>wick</u>, <u>giggle</u>, <u>snivel</u>. Gregg records an identical pronunciation for CUS in a much larger class of words which have /ɩ/ in RP (1959: 412), as do Grant & Dixon (1921: 41), Wilson (1923: 28; 1926: 30) and Wettstein (1942: 41-42) for dialects in Scotland.

The distribution of nonstandard /i/ in modern Scots is unconstrained by consonantal context; it occurs before velars (<u>sick</u>, <u>brick</u>), alveolars (<u>widow</u>, <u>finish</u>) and labials (<u>drip</u>, <u>swim</u>). However, with the exception of one item (<u>snivel</u>), all the BRICK words listed by Patterson for nineteenth-century BV contain high consonants following the nucleus (i.e. /ʃ, k, g, ŋ/, indicating that the preservation of the Scots /i/ pronunciation was subject to phonetic conditioning. Given that the 'correct' vowel in the BRICK set is half-open /ɛ̈/, it seems reasonable to assume that the [+high] quality of the consonants exerted an inhibiting influence on the transfer of /i/ items into the lower vowel-class. The same influence also appears to have protected the reflex of ESc short /i/ from the lowering which affected it in other consonantal environments. <u>King</u> and <u>fish</u>, for example, which had ESc short /i/ rather than /e:/, show modern /i/ in BV and in many Scots dialects.

The majority of the BRICK words cited by Patterson as containing nonstandard /i/ have since been categorically transferred into the 'standard' /ɛ̈/ class. Those that retain /i/ all have /ʃ/ following the nucleus (with the exception of <u>king</u>), which suggests that a restricted version of the original tendency to inhibit lowering is still operative. Thus <u>condition</u>, <u>delicious</u>, <u>politician</u>, etc. still show /i/ in basic BV.

3.5.10 <u>The LEARN class</u>. Patterson reports a low pronunciation, which he writes as <u>a</u>, in a number of words that contain mid vowels in modern standard varieties. The specific environments involved are following intervocalic and preconsonantal /r/, e.g.:

(10)

(a) _rV	(b) _rC	
Derry	serve	certain
terrible	perch	earth
terrier	mercy	heard
errand	vermin	learn
		sermon

This pronunciation appears to be a late survival of the well-documented late ME lowering of short /e/ before /r/. Wyld dates this change in

English regional dialects to the fourteenth century (1920: 216). Spellings of ME /e/ words as ar appear frequently in texts from the fifteenth century onwards (see Wyld 1920: 217ff and Dobson 1968: 558ff for examples). The lowered pronunciation never became fully general in SSE possibly, Wyld and Dobson suggest, because of the influence of the er (or some similar) spelling which was retained in many words. By the eighteenth century the present-day distribution pattern of mid and low variants in standard dialects had largely been established. By that time the low vowel in many ME /er/ words which now have a mid vowel was becoming stigmatised. Many of the items cited in historical documents as containing the stigmatised pronunciation appear on Patterson's list for early BV. A large number of relic forms with a low reflex of ME /e/ before /r/ survive in standard dialects (e.g. bark, clerk, parson, tarry, carve) but most ME /er/ items have reverted to a categorical mid pronunciation. The distribution is slightly different in certain present-day nonstandard dialects, as indicated by spellings such as sarpint, varmint, thar for serpent, vermin, there.

Judging by the large number of ME /er/ items spelt with ar on Patterson's list, the low pronunciation appears to have been entirely regular in mid-nineteenth-century BV. It is clear that English was established in the north of Ireland at a time when the low vowel in ME /er/ items was more general than is now the case in standard dialects. The geographical separation of HE from its source dialects meant that the eighteenth century reversion of ME /e/ to a mid vowel before /r/ in most words in SSE had not affected BV by Patterson's time.

There is no evidence to indicate whether the original late ME lowering of /e/ before /r/ was phonetically abrupt or gradual. It is generally agreed, however, that the lowering resulted in the partial merger of ME /e/ and /a/ in that environment and that the reversion of the low reflex to mid position took the form of a transfer from one phoneme class to another. Patterson's ar spellings suggest that the merger of ME /e/ and /a/ before /r/ was present in mid-nineteenth-century BV as well. Since Patterson's time, all items containing ME /e/ before /rC/ that have a mid vowel in standard dialects have been categorically transferred into the BV /ɛ/ class. (Strictly speaking into the BV /ɛ~e/ class, since /ɛ/ (bed) and /e/ (spade) are neutralised in this environment - see 1.4.5) Thus all the items in (10b) now have a mid vowel in present-day BV ([ɛ:] or [3:]). A couple of relic forms with low vowels persist. For example, [lɑ:ɼn] learn survives in the phrase That'll learn ye! ('That'll serve you right!'). The low reflex of ME /e/, however, has been more resistant to the transfer before post-vocalic /r/. Thus items such as those in (10a) now alternate between a conservative low variant and a progressive mid one. The transfer from one discrete phoneme class to another that has affected the reflex of ME /e/ before /r/ in BV is in marked contrast to the phonetically gradual shifting that has affected the vowel in other contexts. I take this up in 3.6.3.

The low reflex of ME /e/ before /r/ in BV appears to be of predominantly English rather than Scots origin. Gregg (1959) does not record any equivalent low vowel in CUS (except after labial-velars - more on this in 3.6.3). The main Scots development of historical /e/ in this context has, if anything, had an effect opposite to the English lowering. /r/ in Scots forms part of the class of alveolars which have induced raising of ESc /a/ to /e/. Thus CUS has /ɛ:/ in arm, narrow, cart (< ESc /a/) as well as in clerk, berry, errand, harvest, starve (< ESc /e/) (Gregg 1959: 409). In some of the more English-influenced dialects of HE, on the other hand, a low reflex of ME /e/ before /r/ is usual. From the records of the Tape-Recorded Survey of HE it is clear that the low vowel is regular in most SUE and MUE dialects. For published details of this pronunciation, see Henry 1958 (156ff) on north Armagh (MUE), south Armagh and north Monaghan (SUE). Southern HE generally has a mid vowel in this case, but relic forms with /a/ occur, e.g. terrier in Roscommon (Henry 1957: 76) and west Cork (Lunny 1981a: 55). The English origin of the low reflex of ME /e/ before /r/ in BV is confirmed by the records of the Survey of English Dialects which show survivals of this pronunciation in very (VIII.3.2) and herring (IV.9.11) in relic areas of Northumberland, Durham, Westmorland, Lancashire and Yorkshire.

3.6.0 Gradual phonetic change in BV vowels

3.6.1 Introduction. In this section I wish to look at some of the main vowel changes in the recent history of BV that have taken the form of gradual shifts along the dimensions of tongue height and backness (with changes in lip posture sometimes also implicated). The decision to recognise these as gradual sound changes as opposed to the discrete lexical transfers treated in 3.5 is not based initially on the evidence provided in Patterson 1860. It is in the very nature of orthographic representations that they impose discrete categories on what may be a phonetic continuum. Identifying gradual vowel shifts in BV involves observing changes in progress at the present time. Only then can historical documents be consulted for early confirmation of the changes in question. It is generally true of orthographic records that they are better suited to representing phonemic changes than subphonemic ones. Rhymes and puns, for instance, may suggest mergers of sounds which were once distinct. Lexical transfers between discrete phoneme classes, such as those dealt with in 3.5, should not be too difficult to spot in orthographic records, at least in principle. Where gradual sound change is involved things may be a little trickier. If a gradual shift has structural repercussions (such as the phonologisation or dephonologisation of a particular phonetic contrast), we can be more confident of detecting it in orthographic records than if it remains entirely subphonemic.

On the other hand, recent findings on falsely reported historical mergers should make us treat with caution any orthographic evidence that purportedly indicates structural changes (see 5.3.2).[8] Of the recent vowel changes in BV that can be shown to have been proceeding gradually (by referring to evidence of present-day change in progress), there are several which have been extensively reported as involving mergers in the general history of English. Most of the documentary records available to us on nineteenth-century BV support these claims of merger. Thus on the basis of Patterson's orthographic records we might assume, for example, that at his time ME /ɛ:/ was merged with ME /a:/ (<u>meat</u> = <u>mate</u>) in BV. However, careful examination of variation in present-day BV suggests that what Patterson was actually reporting was not in fact merger in this and several other cases but close proximity in phonetic space. Such findings obviously require us to reexamine some of the alleged mergers that have been reported in the history of SSE.

It appears then that Patterson was capable of recognising matters of subphonemic detail, even though he was forced by orthographic constraints to represent them as though they involved gross phonemic differences. There is little doubt about Patterson's ability to record BV speech as accurately as the limitations of conventional orthography would allow. After all, his account of the conditions governing the diphthongal qualities in the DYE and DIE classes (3.5.3) includes one of the earliest statements of what is now known as Aitken's Law, earlier even than Murray 1873. (Staples and Williams, writing around forty years after Patterson, failed to recognise Aitken's Law, despite being trained in the Sweet school of phonetics.) In other words, provided we tread with caution, it is possible to uncover evidence of allophonic differences in Patterson which can be used in the reconstruction of gradual sound changes. My task is to sort this evidence out from reports of genuine phonemic distinctions and mergers, primarily by taking variation in present-day BV as a point of comparison.

There is good reason to believe that the vowel changes I discuss in this section have been proceeding gradually through phonetic space at least since Patterson's day. This belief is based on the assumption that present-day variation which occurs along a phonetic continuum reflects gradual phonetic change. It would be possible to provide instrumental measurements of the phonetic continua in question. For example, variability in a given vowel would show up on a Formant 1/ Formant 2 plot as a scatter of points covering a roughly elliptical area, a technique put to good use by Labov et al (1972) in the analysis of vowel shifting in American English. Another method is to rely on the impressionistic transcription of trained phoneticians. Each of these approaches has its own advantages and drawbacks. Acoustic measurement techniques have an advantage over impressionistic transcription by avoiding, at least in principle, the possibility of inaccuracy on the part of the transcriber or problems of disagreement among transcribers. However, potential inaccuracies in acoustic measurement arising from the effects of voice-quality and pitch-range differences among speakers have not been entirely overcome by normalisation procedures. (In 4.5 I discuss other problems associated with the F1/F2 arrangement, including the fact that such plots fail to provide a reliable means of distinguishing backness from rounding.) Moreover, the time-consuming nature of such instrumental techniques has meant that most of the published findings have been based on unsatisfactorily small numbers of tokens. Most of the F_1/F_2 plots for individual speakers in Labov et al 1972, for example, are based on little more than a half-dozen measurements of each vowel. Impressionistic transcription, on the other hand, has the advantage of enabling the researcher to handle relatively large amounts of data. If this method is linked to techniques of quantificational analysis it can be very successful indeed. One problem, however, is that the transcriber is often faced with the task of imposing categorical divisions on a phonetic continuum. The difficulty is to decide how to classify any realisation that falls on the borderline between two categories. (This is obviously not a problem wherever variation involves alternation between discrete phonemic classes.) Provided the transcriber maintains accuracy and consistency (and there is really no excuse for doing otherwise), the potential distorting effects of borderline cases can be smoothed out simply by recording large numbersof tokens. The value of this method is clearly illustrated by the analysis of variation in BV /a/ undertaken as part of the Belfast sociolinguistic project. The phonetic continuum along which /a/ varies was divided into seven areas corresponding to seven variants. Almost 4,000 /a/ tokens produced by 48 speakers were transcribed and subjected to quantitative analysis with the aid of a computer program. The results, discussed in 3.6.4, give a very detailed picture of gradual change in progress. (See Milroy et al 1983 for an in-depth report on this part of the project.)

Some of the gradual changes I discuss have had structural implications to the extent that they are apparently well on the way towards producing phonological splits or mergers. Others involve purely allophonic shifts, in which case they are presumably uninteresting to those who hold that sound change only becomes significant if 'phonemes change' (Bloomfield 1933: 351). Nevertheless, such sub-phonemic changes were clearly interesting and significant enough for them to be 'pointed out and corrected', as the title of Patterson's booklet testifies. They are interesting from our point of view for the way in which they reveal the tensions between English and Scots influences on BV.

3.6.2 Evidence of change in progress. In examining evidence of change in progress in present-day BV, I wish to concentrate on the main isolative developments of the ME short vowel system, i.e. /ɛ̈, ɛ, a, ɑ, ɔ̈/ from ME /i, e, a, o, u/ respectively. I have selected these vowels in preference to others for two reasons. Firstly, the structural effects of contact between Scots- and English-derived dialects are most clearly demonstrated in the development of these vowels. Secondly, each of the vowels displays a wide spread of allophonic realisations that is quite dramatic (at least in comparison to most British dialects). The allophonic diversity suggests a certain amount of instability in the BV vowel system. This impression is confirmed by checking it against historical records; it soon becomes clear that the variation is symptomatic of change in progress.

Variability in BV /ɛ̈, ɛ, a, ɑ, ɔ̈/ is sensitive both to features of the phonetic environment and to sociolinguistic factors. The socially stratified variation provides us with an apparent-time picture of the changes in question. As far as the phonetic constraints on variation are concerned, it is possible to recognise a rank order of phonological environments that preferentially condition the changes in question. The ordering of environmental constraints that determine the development and distribution of vowel quality differences corresponds closely to the order of elements on the C-scale that was set up in 2.4.4 on the basis of quantity phenomena. Thus the raising of BV /ɛ/ and /ɑ/ and the backing of /a/, changes that can be shown to be in progress at the present time, correlate closely with the lengthening of these vowels.

3.6.3 Raising of /ɛ/. Variation in the quality of BV /ɛ/ occurs along a phonetic continuum, ranging from [ẹ] to near-cardinal [a]. As pointed out in 1.4.4, quality variation in this and the other historically nonhigh short vowels correlates closely with length differences. Generally speaking, /ɛ/ is low when short and mid when long, with a centring off-glide usually accompanying long variants. Some idea of the range of quality and quantity variation in the vowel can be gauged from Fig 3-1 which shows the distribution of /ɛ/ variants across three classes of environments in two outer-city Belfast areas, Andersonstown (west Belfast) and the Braniel (east Belfast), and Lurgan (an MUE-speaking

Fig 3-1. % distribution of MUE /ɛ/ (bed, bet) variants by following environment in outer-city Belfast (Andersonstown, the Braniel) and Lurgan.

town about 30 km southwest of Belfast).[9] The environments were selected on the basis of the length conditions outlined in 1.4.1, i.e. following 'short' consonants (_t, _nt, _lt in terms of the C-scale and abbreviated here to _T), polysyllables (_C$) and following 'long' consonants (_s, _d, _n, _l, _z on the C-scale, abbreviated to _D). (Following /r/ was excluded from the analysis because of the complicating factor of wholesale neutralisation in this environment - see 1.4.5.) As the histograms indicate, the correlation between length and height in /ɛ/ is by no means categorical.

The figures for /ɛ/ in outer-city Belfast are in marked contrast to those for the three inner-city communities of Ballymacarrett, the Clonard and the Hammer (Tab 3-2). The latter show the incidence of low realisations of /ɛ/ in the 'short' environments _T and _C$ for both sexes and two age-groups. The inner-city females show a distribution pattern similar to that of outer-city speakers. For inner-city males, however, the short-low correlation is categorical or near-categorical before 'short' consonants.

Tab 3-2. % low realisations of MUE /ɛ/ in typically 'short' phonetic contexts in three inner-city Belfast communities, Ballymacarrett (B), the Clonard (C) and the Hammer (H).

		Men 40-55	Women 40-55	Men 18-25	Women 18-25
_T	B	100	68	100	56
	C	97	81	84	73
	H	97	75	98	67
_C$	B	73	56	78	50
	C	81	67	75	60
	H	76	68	76	52

Present-day variation in BV /ɛ/ provides a basis for the reconstruction of a single historical base-form. From the analysis of other variables, it becomes clear that males are generally more conservative in their linguistic behaviour than females (a recurring pattern in the urban sociolinguistic studies that have been undertaken to date). In the case of the variable realisation of BV /ɛ/, it is significant that young women, who in many other ways are the most progressive of inner-city BV speakers (see L. Milroy 1980), should show the lowest incidence of open /ɛ/. It is natural to assume then that the lower variants which have the highest incidence among male speakers are more conservative than mid variants. This assumption is borne out by the historical record. From documentary evidence it is clear that low realisations of /ɛ/ not only are older than mid variants but also once extended to phonetic environments where they no longer appear. In other words, real-time and apparent-time evidence together suggest a process of raising in BV /ɛ/ that has been subject to phonetic and sociolinguistic conditioning.

Patterson provides some evidence of an open reflex of ME /e/ in environments besides following /r/ (already discussed in 3.5.10). Of the five examples he gives, four suggest the possibility of an earlier lowering influence of preceding /r/:

(11)

	Patterson 1860
wren	wran
wrestle	wrastle
wretch	wratch
grenadier	granadier
desk	dask

Three of these words can probably be excluded from our discussion of /ɛ/ right away. Wren, wrestle and wretch (Russell 1909 adds wet written as wat) in all likelihood contained BV /a/ in 1860, the result of lowering of ME /e/ after /w/ (since lost before /r/) in the ancestor dialects of HE. This lowering is well-documented in Scots. Wilson, for example, records [ɑ:] in web, wet, dwell, twelve, wrestle, west, wedding, wren for southwestern and central Scots (1923: 26; 1926: 28). This is clearly the source of CUS /ɑ:/ in a similar set of words noted by Gregg (1959: 410). However, the low vowel in wren, wrestle and wretch in nineteenth-century BV is not necessarily exclusively Scots in origin, since the same relic pronunciations crop up in HE dialects which have no Scots background. Lunny for instance records wren in west Cork with /a/ (1981a: 5). A number of examples of a-spellings of ME /e/ after /w/ appear in EModE texts, including wreck, wedge, wrestle and wretch in Shakespeare (Kökeritz 1953: 185). Kökeritz puts these down to the existence of /e/ ~ /a/ doublets in ME (but see below for a different interpretation). Many dialects in England and America have a low vowel in wrestle and similar words (Wright 1905: 689; Krapp 1925: 96).

The two remaining ME /e/ words spelt with *a* by Patterson (*grenadier* and *desk*) hardly constitute a secure basis upon which to reconstruct the quality of /ɛ/ in mid-nineteenth-century BV. Fortunately, however, we have access to the reports of other, roughly contemporary writers who give quite detailed descriptions of the vowel. From these it is evident that low realisations of /ɛ/ had a much wider distribution than is the case today. Both Staples (1898) and Williams (1903) provide descriptions of BV vowels based on Sweet's (1877) classificatory system, which allow us to interpret the vowel qualities with a fair degree of accuracy. Staples records a 'low mixed wide' vowel in ME /e/ words, i.e. something like [ä] (1898: 374). Williams has 'low front narrow', indicating a fronter quality than Staples, possibly [æ]. It is possible that Williams was describing a more prestigious variant than Staples, since his account covers both educated and uneducated speech, often vascillating between the two and leaving the reader unsure which he is referring to. In any case, it is clear that the two writers are describing a low realisation of BV /ɛ/, i.e. a variant that appears most frequently in present-day conservative speech. What is significant from the point of view of reconstruction is the distribution of low /ɛ/ in the nineteenth century as compared to the present. The complete list of ME /e/ words described as containing a low vowel by Patterson, Staples, Williams and Russell provides us with the following distribution pattern (environmental abbreviations taken from the C-scale):[10]

(12)

(a)	_ C$		_ t	
	seldom	any	let	pet
	grenadier	many	threat	get
	penny	weapon		
	better	weather	$-\left\{\begin{matrix}\text{n}\\ \text{l}\end{matrix}\right\}$ s	
	letter	feather		
	eldest	heaven		
	settle	seven	health	length
	fellow	heather	self	strength
	measure	plenty		
	treasure	endeavour		
(b)	_ s		_ d	
	deaf	cress	bed	said
	fresh	crest	Ned	thread
	mesh	left	egg	edge
	desk	breath	lead	head
	best	breast	bread	red
	death	bless		

(12b) continued

_n		_l	
men	ten	bell	tell
end	them	held	sell
pen	friend		

The distribution pattern in present-day BV is different, as Fig 3-1 and Tab 3-2 show. In conservative speech at least, low variants are retained before the environments in (12a), very much as in nineteenth-century BV. However, low realisations are now almost totally absent from the 'long' environments in (12b). In the latter, mid realisations of /ɛ/ now regularly occur in all types of BV.

It is evident that, since the nineteenth century, mid realisations of /ɛ/ have been spreading at the expense of low realisations. As Fig 3-1 and Tab 3-2 indicate, mid /ɛ/ has almost totally replaced low /ɛ/ in 'long' contexts and is making progress in 'short' contexts. For many speakers in conservative inner-city areas, /ɛ/ is still categorically low in 'short' environments, but in the more progressive outer-city estates the vowel is now categorically mid for some speakers. It is significant that the mid vs low distribution in the linguistically conservative MUE town of Lurgan (Fig 3-2) is more similar to that of inner-city Belfast (Tab 3-2) than to that of the new outlying areas.

It is possible to recognise in the variability of /ɛ/ in present-day BV a tension between competing linguistic norms represented by the different dialect-groups in Belfast's rural hinterland. Long mid variants of the vowel appear to have their source in Scots via US; the short low realisations can be shown to be characteristically English in origin. The English background to the low variants is most clearly demonstrated by their presence in SUE, but it is reasonable to assume that they were also present in the speech of English settlers and their descendants who were originally dominant in Belfast before the large-scale influx of immigrants from the US-speaking areas of Ulster. Detailed descriptions of both CUS and SUS reveal that US /ɛ:/ is long and mid in all stressed contexts, including those in which the vowel is short and low in BV (Gregg 1958: 399; 1964: 166). From my own observations of the records of the Tape-Recorded Survey of HE, it is clear that most types of SUE, on the other hand, have short low realisations of the equivalent vowel in all environments. Published details on this are sparse, but Henry records the following words with [æ] or [a] in the SUE areas of south Armagh and north Monaghan (1958: 156):

(13)

(a)	meadow	set	(b)	spread
	Wednesday	neck		head
	pheasant	get		wedge
	chestnut	step		leg
	regular			tell
	second			
	meadow			
	belly			
	heifer			

This pattern of distribution is remarkably similar to that of nineteenth-century BV as illustrated in (12). The words in (13a) ('short' environments in BV) regularly contain low /ɛ/ in conservative BV as well. However, the words in (13b) (BV 'long' contexts), which would also have contained low /ɛ/ in nineteenth-century BV, now almost categorically have mid vowels in the present-day dialect. Henry also mentions short low realisations of /ɛ/ as being typical of some Leinster speech (1958: 156).

A survey of present-day British dialect evidence confirms that long mid realisations of BV /ɛ/ are likely to be Scots in origin, while short low variants ultimately have an English background. As far as the length of the vowel is concerned, I have already noted that the general lengthening of historically short nonhigh vowels (not just in Aitken's Law 'long' environments) is typical of southwestern Scots (1.2.2). Lengthening of ME /e/, on the other hand, is not usual in the dialects of England in any context. The vowel in southwestern Scots and to a certain extent in central Scots is almost identical to that in US in terms of both quantity and quality. Wilson records long mid [ɛ:] in environments where the equivalent vowel is also long and mid in BV (e.g. <u>bed</u>, <u>left</u>, <u>beg</u>, <u>bell</u>, <u>den</u>) as well as in contexts where it is short and low in conservative BV (e.g. <u>neck</u>, <u>belt</u>, <u>else</u>, <u>yellow</u>, <u>met</u>) (1923: 26; 1926: 28). It is true that ESc /e/ has regularly developed into a low front vowel in southern Scots (Wettstein 1942: 38; Zai 1942: 33), but there is no trace of this lowering in US. The lowering of ESc /e/ after /w/ (already mentioned in this section), which has affected Scots generally (including CUS), appears to have been an earlier change, quite separate from the southern Scots context-free lowering. This is evident from the fact that ESc /e/ is merged with ESc /a/ after /w/ in southern Scots, as in other Scots dialects (so that wren = ran). However, ESc /e/ lowered in other environments in southern Scots remains distinct from /a/ (hence [bæ:d], [ba:d] bed vs [bɒ:d] bad).

I have already discussed the lowering of ME /e/ before /r/ which affected at least some of the ancestor dialects of HE (3.5.10). However, a-spellings of ME /e/ in other environments appear sporadically in EModE texts. Kökeritz cites as examples from Shakespeare's time ambassie, enmash, malancholy, rallish, alligant, yallow for embassy, enmesh, melancholy, relish, elegant, yellow (1953: 185). Kökeritz believes that such spellings indicate the existence of doublets with ME /e/ and /a/. Other writers interpret them as inverted spellings which provide an early indication of the front-raising of ME /a/ (e.g. Zachrisson 1918: 316-318; Wyld 1920: 198-199). Elsewhere, however, Zachrisson assumes that the a-spellings reflect a dialectal lowering of ME /e/ (1913: 59), a view that is shared by Dobson (1968: 551). The last interpretation receives support from modern dialect evidence. Lowered reflexes of ME /e/ in environments other than following /r/ are reported by Wright in amongst other places the southwest and the north of England (areas in which some of the main source dialects of HE were spoken)(1905: 51ff).

What the comparative and historical evidence suggests is that short low realisations of BV /ɛ/ are primarily English in background, while long mid realisations have their source in Scots. Real-time evidence in the shape of Patterson's, Staples' and Williams' accounts indicates that in the nineteenth century the realisation of BV /ɛ/ was more English-like than it is today. In other words, it was similar to the equivalent vowel in present-day SUE. Since then a process of gradual raising has meant that typically English low realisations have been giving way to a Scots long mid pronunciation. The gradual diffusion of the Scots realisations has occurred across social dimensions as well as across phonological environments, as Fig 3-1 and Tab 3-2 indicate. The phonologically conditioned diffusion can be represented in terms of a historical shift from a SUE-like pattern towards a more US-like pattern:

(14)

	_T	_C$	_D
SUE BV c. 1860	low	low	low
Conservative BV c. 1980	low	low	mid
Progressive BV c. 1980	low~ mid	low~ mid	mid
US	mid	mid	mid

3.6.4 Changes in /a/. The range of variation in BV /a/ is quite extensive, occurring on a phonetic continuum from front [ɛ̝], through low central [ä] to back rounded [ɔ]. For the purposes of quantifying this variation, the continuum was divided into seven variants. The distribution of these variants by phonological environment is displayed in Fig 3-2. The roughly 4,000 /a/ tokens that make up the corpus of data upon which Fig 3-2 is based were collected from 48 speakers from the three Belfast inner-city areas of Ballymacarrett, the Clonard and the Hammer. (See appendix 2 for a detailed breakdown of the environments.) From the histograms in Fig 3-2, it is evident that back realisations of /a/ are favoured by certain following nonvelar consonants, specifically nasals, fricatives, liquids and voiced stops, all of which clearly peak at variant [ɑ]. Following palato-alveolars and voiceless stops cluster around the low central variant [ä], while following velars clearly favour front realisations. Preceding velars also tend to condition relatively front realisations of /a/, as Fig 3-3 shows.

Although it is true that the major part of the variation in BV /a/ occurs on a phonetic continuum, there is nevertheless a certain amount of alternation between discrete variants within particular subsets of /a/ items. The alternating classes in question involve three historical changes:

(i) the backing and rounding of ME /a/ after /w/;

(ii) the collapse of the ME /a/ : /o/ opposition before labials;

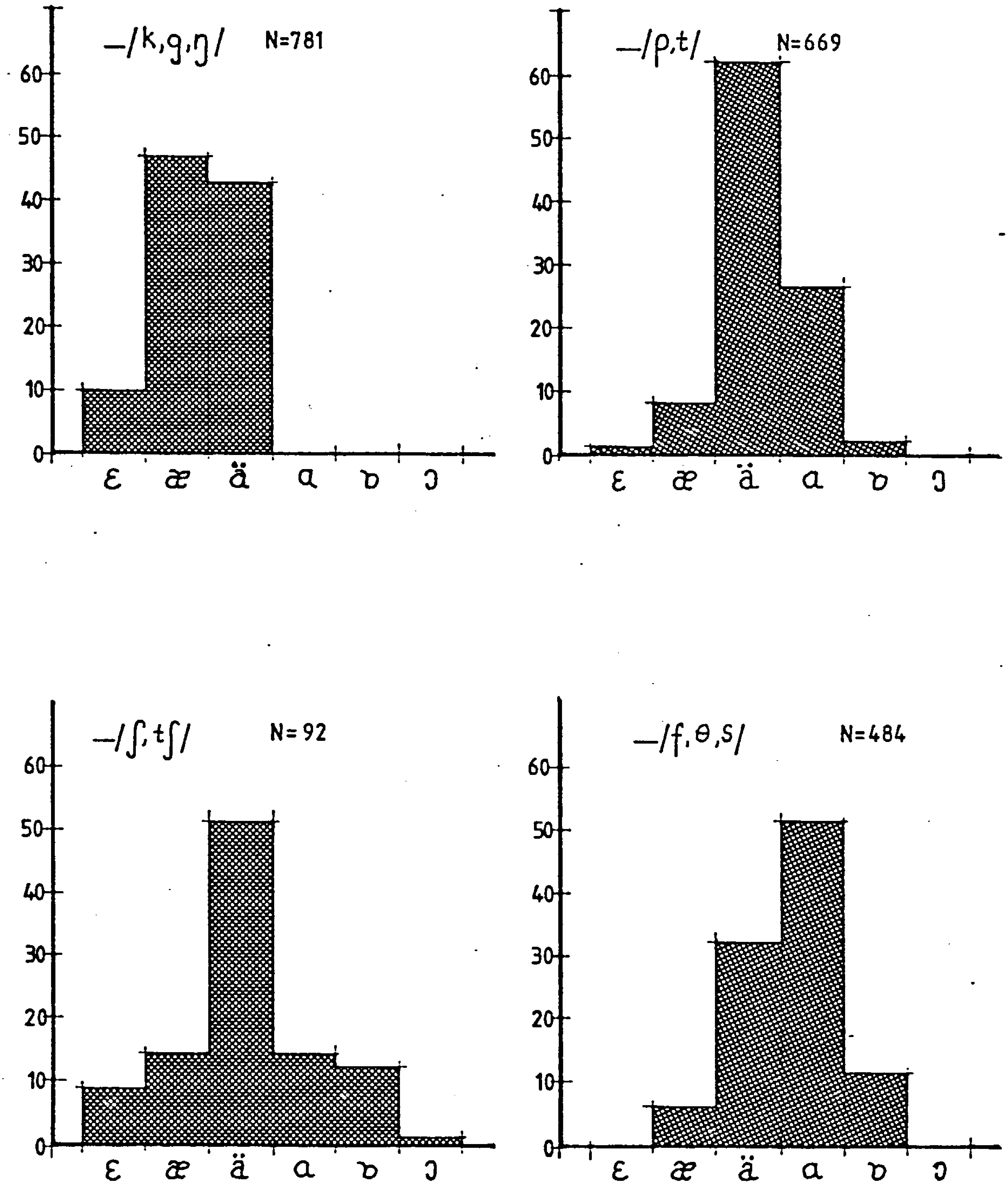


Fig 3-2. % distribution of BV /a/ (bat, bad) variants by following environment in three inner-city Belfast communities: Ballymacarrett, the Hammer, the Clonard. Area scores conflated.

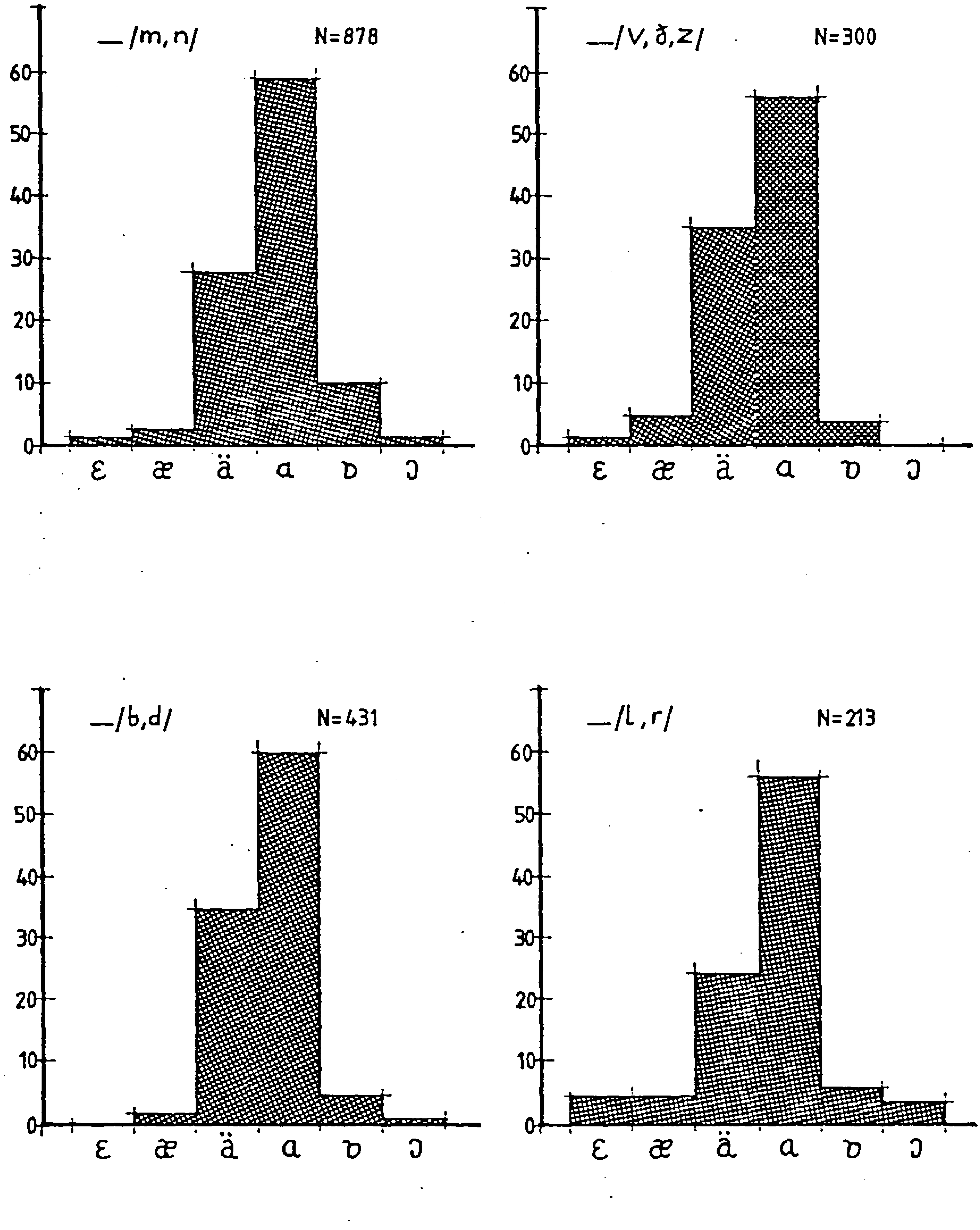


Fig 3-2 continued.

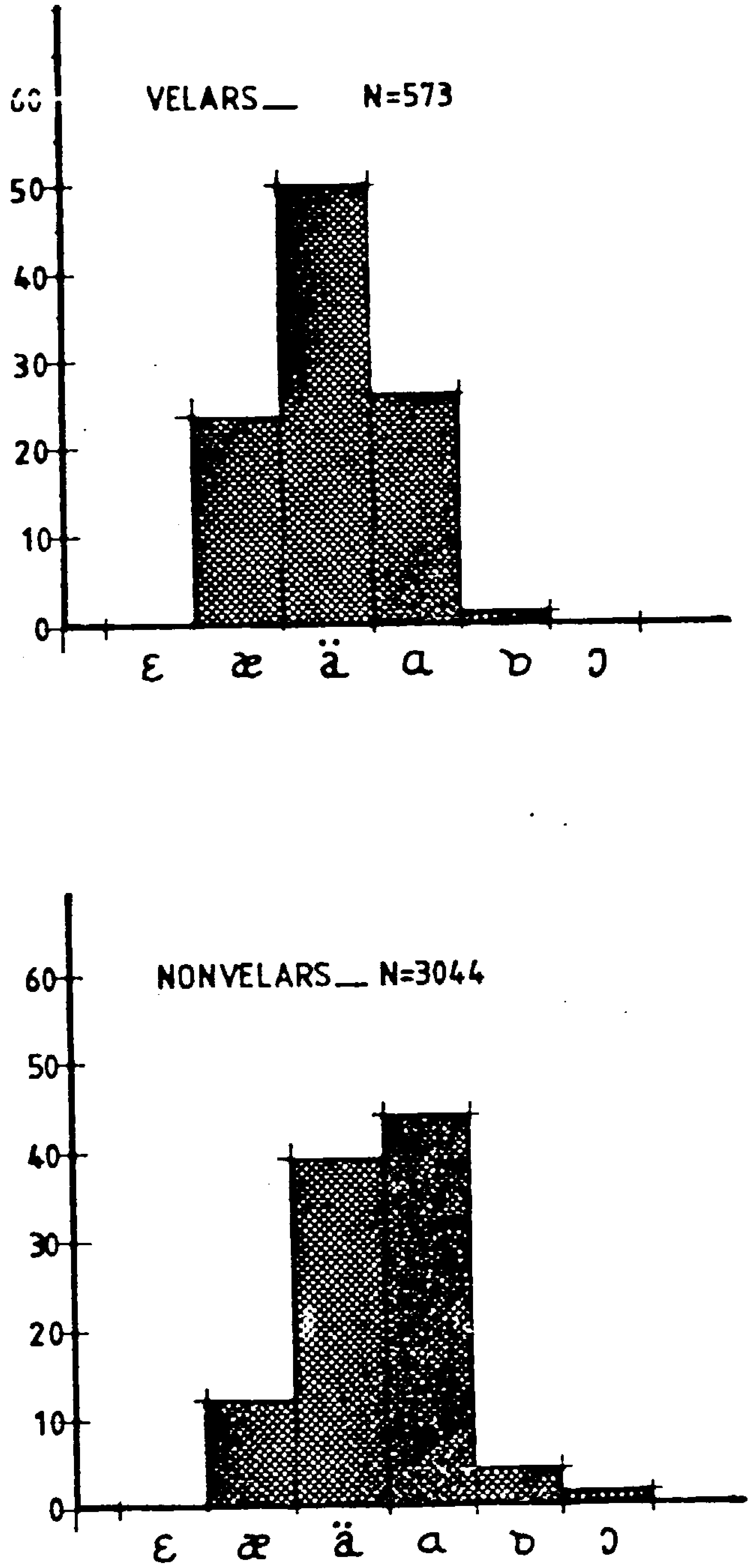


Fig 3-3. % distribution of BV /a/ (<u>bat</u>, <u>bad</u>) variants by preceding environment in three inner-city Belfast communities: Ballymacarrett, the Hammer, the Clonard. Area scores conflated.

and

(iii) the raising of ME /a/ to /e/ in velar environments.
(i) has gone to completion in standard dialects (hence want, quality with /ɒ/ in RP) but did not affect the ancestor dialects of BV. The class of words containing ME /a/ after /w/ now alternates in BV between conservative /a/ and standard /ɑ/. Changes (ii) and (iii) have left little or no mark on standard dialects but were almost completely regular in at least some of BV's ancestor dialects. Now BV has alternations between conservative /a/ and standard /ɑ/ before labials and between conservative /ɛ/ and standard /a/ in velar contexts. Strictly speaking, such alternations should have been treated under lexical transfer (3.5). However, I find it convenient to discuss them in the same context as the gradual phonetic changes that have affected /a/ and /ɑ/, since both the phonetically gradual and the phonetically abrupt but lexically gradual changes that are involved interact with one another to a great extent.

Patterson provides a very detailed picture of the state of /a/ in mid-nineteenth-century BV. The overall impression to be gained from his list of relevant words is that the realisation of the vowel was overwhelmingly front in his day, with only a few traces of back quality to be found. There is little in his booklet to suggest that BV in 1860 had back allophones of /a/ on anything like the scale that is apparent today. It is conceivable that Patterson would have deemed it unnecessary to pass comment on back realisations of /a/ before voiceless fricatives, since these would have approximated an RP pronunciation (e.g. [pɑ:s] pass, [pɑ:θ] path). However, it is unlikely that someone with his ear for detail or desire to iron out 'provincialisms' would have failed to notice nonstandard back realisations of /a/ before say nasals or voiced stops, had they been common (e.g. [mɑ:n] man, [bɑ:d] bad), especially since these are noticed and openly commented on by lay observers of present-day BV. (Witness such dialect spellings as bawd, haun, mon for bad, hand, man in Pepper 1979.)

Only five items crop up in Patterson with spellings which might at first sight indicate a back pronunciation of /a/: farm, tassel, barrow (all spelt with o) and canal, cabal (spelt canaul, cabaul).

These can probably be excluded from the /a/ class anyway. In all likelihood, the stressed vowels in canaul and cabaul represent the regular merger of historical /a/ and /au/ before /l/ (so that all = awl), in which case they are BV /ɔ:/, not /a/. Tassel appears in Shakespeare with o, which might suggest BV /ɑ/ (cot) or /ɔ:/ (caught) rather than /a/. This is confirmed by the fact that the word occurs in CUS with /ɔ:/ (equivalent to BV /ɔ:/ and /ɑ/) rather than with /ɑ:/ (= BV /a/). (Cf. similar pronunciations of the word in some United States dialects (Kurath & McDavid 1961: 141).) (Kökeritz, however, takes tossel in Shakespeare to be an inverse spelling arising out of a confusion between the reflexes of ME /a/ and /o/ due to the EModE lowering and unrounding of the latter (1953: 165).) As for the o-spellings in farm and barrow, these may well represent BV /ɔ:/ through a sporadic Scots development of historical /a/ to /o/ before /r/, rather than the usual front-raising to ESc /e/ in this environment, as in CUS /ɛ:rm/ arm. Wilson cites a number of forms in southwestern and central Scots which bear witness to this development, e.g. bar, star with [ọ:] (1923: 24; 1926: 25). Gregg records /ɔ:/ in barrow in CUS (1964: 180). The rounding influence of following /r/ is also in evidence in United States dialects that have /ɒ:/ in star, bar, etc.

If we accept Dobson's contention (1968: 544ff) that late ME /a/ was a low front vowel (and Lass has recently adduced convincing comparative evidence in support of this view (1976: ch 4)), it is clear that two processes have been at work in BV and its ancestor dialects which have effected an allophonic split in the /a/ class. On the one hand, there has been raising of /a/ in certain (particularly velar) environments. On the other, there has been backing of /a/, especially before certain nonvelar consonants, specifically nasals, fricatives, liquids and voiced stops, as the diagrams in Fig 3-2 indicate. It is important to bear in mind that this split has been predominantly allophonic. True, the raising of /a/ has had repercussions at the phonemic level to the extent that partial merger with /ɛ/ has taken place, but there has been nothing that corresponds to the large-scale phonemic split between short front /æ/ and long back /ɑ:/ (mass ≠ pass) that has occurred in the ancestor of RP and related dialects.[11] Real-time documentary evidence together with apparent-time evidence from present-day variation suggest that the front-raising of BV /a/ is of some antiquity and was probably completed in some of the British source dialects. On the other hand, the same evidence indicates that /a/-backing is comparatively recent in BV, although it is much older in some of the tributary dialects.

Patterson's spellings of ME /a/ with e run to almost 500 words. This gives us a sizeable enough corpus on which to base a fairly detailed description of the phonological conditioning involved in the front-raising of /a/. The large number of items listed also suggests that, whatever the historical origins of the raising process might be, it was still productive in Patterson's day. Patterson himself states the raising conditions as follows:

(15)

> e is improperly substituted for short a in...those words in which a is preceded by c or g, or followed by the sound of k, hard g, or ng (1860: 15).

There are good grounds for assuming that the class of velars referred to in (15) was palatalised in nineteenth-century BV (see 3.7). The raising would thus appear to be a phonetically natural process, in which /a/ partly assimilates the high front tongue position of a neighbouring palatal. The process produced the following typical arrangement of /ɛ/ < ME /a/ in nineteenth-century BV (all examples from Patterson):

(16)

(a)

/k/ _	/g/ _
cap	gas
cast	gap
can	gaff
scab	gallop
cat	gander

(b)

_ /k/	_ /g/	_ /ŋ/
knack	bag	bang
pack	drag	fang
fact	stag	slang
sack	rag	bank
lack	tag	thank

Other /a/ items spelt with e by Patterson suggest that the raising applied at least sporadically in certain non-velar environments as well, particularly before nasals and in polysyllables:

(17)

branch	ladder
slant	rather.
damsel[12]	shadow
January	apparel
Antrim	Ballymacarrett ('Bellymecerrett')

The fact that Patterson writes other words containing /a/ in nonvelar environments with a (e.g. trap, band, handle) suggests that raising was only productive in velar contexts.

The overall picture of front-raising in /a/ has changed somewhat in present-day BV. As Fig 3-2 and Fig 3-3 indicate, there is still a general tendency for velar environments to favour front realisations of /a/. However, this tendency has been attenuated by a relatively recent competing development - that of /a/-backing. The latter appears to have been proceeding by two distinct routes: by gradual phonetic drift and by lexical transfer from one discrete vowel class to another. What has apparently happened is that the combination of an /ɛ/ : /a/ merger in velar environments and the gradual backing of /a/ in nonvelar environments threatened to produce a dissolution of the /a/ class. Lexical transfer was subsequently implemented, presumably in response to standardising pressures, to disengage historical /a/ items from the /ɛ/ class. Evidence for this chain of events is provided by the fact that gradual backing has been more or less regular, while the disengagement of the /ɛ/ and /a/ classes by lexical transfer has been very messy (on which more below).

When the /a/ : /ɛ/ merger is reversed before velars, the /a/ items generally show up with a low central or front vowel. The phonetic motivation of the original front-raising process is still partially active to the extent that neighbouring palatalised velars still disfavour fully back realisations of /a/, as the diagrams in Fig 3-2 and Fig 3-3 show. There is now a set of items containing velars which alternate between a conservative form merged with /ɛ/ and a progressive form with /a/ (usually [ä]), evidence that the reversal of the /ɛ/ : /a/ merger is still in progress. In the disengagement of the two classes, it is possible to recognise a certain degree of phonological conditioning. The rate at which items with preceding velars are being transferred out of the /ɛ/ class has been much faster, at least in the case of monosyllables, than the reallocation of words with following velars. The greater tendency of the latter to condition front-raised variants of /a/ is evident from a comparison of the distribution peaks for velars in Fig 3-2 and Fig 3-3. Thus the sets in (16a) now rarely occur with /ɛ/ except in the most conservative of BV. The quality of the vowel in these words is now more likely to be determined by the following consonant, and if the latter favours backing, it generally overrules the fronting tendency of the preceding velar. For example, gas, car, can which had /ɛ/ in Patterson's day (= guess, care, ken) now almost categorically appear with back realisations of /a/. It is in the following-velar class that the overwhelming majority of alternating /a/ words are to be found. For example, bag alternates between a conservative form that is identical to beg and a progressive form [bäιɡ̟]. That velars are still palatalised in the environment of /a/, even when the latter is low central, is evidenced by the fact that a palatal glide is generally noticeable between the consonant and the vowel, especially in conservative speech, e.g. [ɡ̟jäp] gap, [bɛ:ŋ̟] ~ [bäιŋ̟] bang. (This feature has clear parallels in other varieties of English, including some Carribean creoles. More on this in 3.7.2.)

As already mentioned, however, the disengagement of the /ɛ/ and /a/ classes has been fairly messy. There is a residue of nonalternating words which historically contained /a/ but which have remained behind in the /ɛ/ class. Fag ('cigarette'), slang, slag ('tease', 'insult') and drag, for example, categorically contain /ɛ/ for many vernacular speakers. Many speakers are unable to separate /ɛ/ from /a/ before /k/ in minimal pair tests, so that knack = neck, pack = peck, flax = flex. Frequent hypercorrections are to be observed, especially among educated speakers, the result of an overgeneralisation of the lexical transfer strategy, e.g. hackle for heckle, wrack for wreck. Moreover, /ɛ/ reflexes of ME /a/ have been preserved to a large extent in polysyllabic environments, the conservative nature of which has already been illustrated several times. The following words from Patterson, for example, still retain /ɛ/ in conservative BV:

(18)

cabbage	factory
carrot	Bangor
cabinet	action
candle	jacket
carriage	practice

The same is even true of historical /a/ in a few polysyllabic words containing nonvelar consonants, e.g. January, avenue, national.

The earliest clear report we have of /a/-backing in BV is that of Staples who describes a 'low back wide' vowel before nonvelar nasals, e.g. hand, man, land (1898: 374). He makes no mention of this vowel quality in any other environment. The figures on present-day variation confirm that it is /n/ and /m/ that lead the way in the backing of BV /a/, just as they do in the front-raising of the equivalent vowel (i.e. 'tense' /ǣ/) in many American English dialects (Labov, Yaeger & Steiner 1972). The highest incidence of back-raised and rounded /a/ in BV occurs in this environment (see Fig 3-2). A breakdown of the figures on /a/ backing by age, sex and area suggests where this backing may have originated. The index scores in Tab 3-3 measure the incidence and degree of retraction and back-raising of /a/ in nonvelar contexts in three Belfast inner-city communities. A four-point scale was used to calculate these figures: [æ] = 1, [ä] = 2, [ɑ] = 3, [ɔ] = 4. An index score of 3 or above therefore indicates a very high incidence of back and back-rounded tokens, and a figure of 2 or less a very low incidence. (A standard deviation test confirmed that mid-range scores were a genuine statistical reflection of clustering around the central vowel rather than the distorted result of averaging out diverse polar values.) It is clear that backing of /a/ is most advanced among Ballymacarrett men (east Belfast), which suggests a US background to the change. The direction of the change is, however, difficult to establish without first taking into account competition between overt and covert prestige norms in BV /a/.

J. Milroy (1982a) has shown that the effect of standardisation on the realisation of BV /a/ is not to shift its quality nearer to that of some external variety (e.g. RP) but rather to narrow its allophonic range (which, as we have seen, is quite vast in the most vernacular of speech). Two reasons suggest themselves for the failure

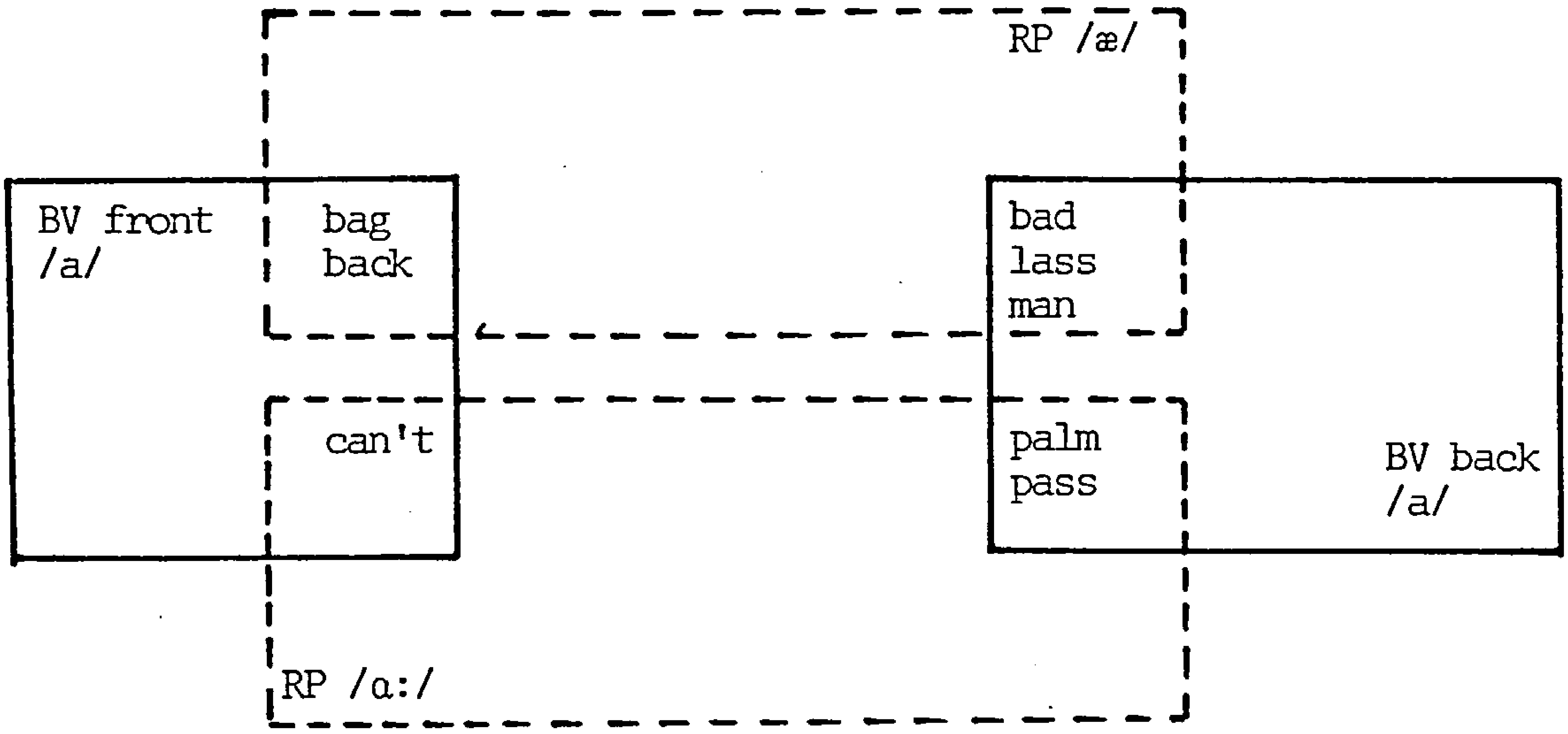
Tab 3-3. Index scores measuring incidence and degree of retraction of BV /a/ in nonvelar environments in three inner-city Belfast communities: Ballymacarrett (B), the Hammer (H) and the Clonard (C). Interview style (IS) and spontaneous style (SS). [æ] = 1; [ä] = 2; [ɑ] = 3; [ɔ] = 4.

		Men 40-55	Women 40-55	Men 18-25	Women 18-25
B	IS	3.03	1.75	2.89	1.89
	SS	3.58	2.58	3.43	2.10
H	IS	2.80	2.30	2.60	2.45
	SS	2.98	2.37	2.53	2.38
C	IS	2.79	1.77	2.36	2.36
	SS	2.79	1.85	2.33	2.61

of diverse vernacular realisations of /a/ to converge on an RP-like pattern. Firstly, there are strong sociolinguistic pressures that militate against the adoption of the RP /æ/ : /ɑ:/ contrast by BV speakers. On the one hand, the quality of RP /æ/ has much in common with that of vernacular front /a/ in velar environments (e.g. in back, bag, bang). On the other hand, RP /ɑ:/ is similar to vernacular back /a/ in certain nonvelar environments (e.g. in pass, laugh). Thus, adopting RP-like realisations would often necessarily involve the use of strongly vernacular pronunciations. Secondly, there is the structural problem of converting the allophonic diversity that is characteristic of BV /a/ into the two-way phonemic split that is needed to acquire the RP /æ/ and /ɑ:/ classes. Such underdifferentiation in relation to RP is likely to inhibit acquisition of the RP contrast. Moreover, the lexical distribution of the RP /æ/ : /ɑ:/ phonemic split by no means coincides with that of the BV allophonic front : back split, as the illustrative arrangement in Tab 3-4 shows.

J. Milroy (1982a) demonstrates clearly that standardisation of /a/ in Belfast involves the convergence of realisations on a single point for each speaker, usually low central or low front. This is clearly illustrated in Tab 3-5 and Tab 3-6 which show the ranges of variation in the realisation of /a/ for a working-class and a middle-class Belfast speaker respectively in word-list style.

Tab 3-4. Illustration of the lack of correspondence between the lexical distribution of the RP /æ/ : /ɑ:/ phonemic split and the front : back allophonic split in BV /a/.



Tab 3-5. /a/ range for a working-class Belfast speaker: word-list style (from J. Milroy 1982a).

	ɛ	æ	a	ä	ɑ	ɔ
bag	+					
back		+				
cap				+		
map					+	
passage					+	
cab						+
grass						+
bad						+
man						+
castle				+		
dabble				+		
passing						+

Tab 3-6. /a/ range for a middle-class Belfast speaker: word-list style (from J. Milroy 1982a).

	ɛ	æ	a	ä	ɑ	ɔ
bag			+			
back			+			
cap			+			
map			+			
passage			+			
cab			+			
grass			+			
bad			+			
man			+			
castle			+			
dabble			+			
passing			+			

The focused pattern of /a/ realisation seems to be the norm towards which some of the speakers, particularly the women, in Tab 3-3 are shifting. An index score of 2.00 in Tab 3-3 indicates a convergence of /a/ realisations on [ä]. In interpreting the figures in Tab 3-3 then, it is important to recognise two competing norms that determine variability in /a/ (or lack of it). On the one hand, there is the overt prestige that is associated with convergence on a central realisation (represented by scores clustering around 2.00). On the other, there is apparently covert prestige attached to relatively more back realisations of /a/ (represented by scores of 3.00 or more) towards which most male speakers aim. These figures alone are not a reliable guide to the directionality of the changes affecting /a/ in present-day BV. However, taken in conjunction with the real-time evidence provided by Patterson, they indicate that backing of /a/ has established itself over the last century or so as a working-class prestige feature and that the change is most advanced in east Belfast.

Since the backing of /a/ is most marked in east Belfast, it is natural to seek a possible origin of the change in the dialects of the US hinterland which has been the main source of settlement in that part of the city. Throughout most of the US areas, the isolative reflex of ESc /a/ is indeed fully back /ɑ:/. Gregg reports only

Donegal US as having a nonback quality in this vowel (1963: 81). He records fully back /ɑ:/ in Co. Antrim CUS (1958: 399), and I have noted similar realisations in north Down from the records of the Tape-Recorded Survey of HE. Tracing the origins of backing still further back, we find fully back isolative reflexes of ESc /a/ in many dialects in Scotland. Grant & Dixon describe the vowel as 'low back lax' without being specific about its geographical distribution (1921: 52). (But see Romaine (forthcoming) on the problems of interpreting the evidence of these authors.) They also mention that the vowel may be back-raised in central Scots. Wilson reports fully back [ɑ:] in southwestern and central Scots and notes a tendency for the vowel to be raised and rounded, particularly before nasals (1923: 24; 1926: 25). In fact the distribution of back [ɑ:] and [ɔ:] suggested by some of his examples looks very similar to that of the equivalent vowel in east Belfast Vernacular:

(19)

[ɑ:]	[ɔ:]
last	man
past	hand
bad	land
bark	lad
lamb	handle

(The only major difference between BV and the southwestern and central Scots pattern described by Wilson is that the latter has long back [ɑ:] in contexts which condition short front or central realisations in the former (e.g. fat, back, cat).) Back reflexes of ESc /a/ are also a feature of southern Scots. Murray reports the vowel as 'low back wide' in these dialects and notes a tendency for this to back-raise and labialise (1873: 110). The unround back variant is recorded by Zai (1942: 23) and the round variant by Wettstein (1942: 37).[13]

The backing and rounding of ME /a/ after /w/, which has produced /ɒ/ in RP (e.g. watch, what, quality), has largely left conservative HE unaffected. This is because the change only established itself firmly after the main British colonisation of Ireland had been completed in the early seventeenth century. Dobson notes that at this time ME /wa/ and /hwa/ items alternated between a conservative unround variant and a progressive rounded variant in SSE (1968: 716ff). In fact the unround alternant persisted in conservative standard speech until the early nineteenth century and is still widespread in North American, Scots and English varieties. The older pronunciation is clearly the one that became established in Ireland in the sixteenth and seventeenth centuries. All detailed accounts of rural HE dialects record this variant, e.g. Roscommon (Henry 1957: 74), Co. Antrim CUS (Gregg 1959: 410-411) and west Cork (Lunny 1981a: 55). The large number of items listed by Patterson with the unround vowel suggests that this pronunciation was categorical or near-categorical in mid-nineteenth-century BV. In present-day BV, however, the class of ME /wa/ and /hwa/ items alternates between conservative /a/ and standard /ɑ/. This pattern of alternation is interrupted in environments where /a/ and /ɑ/ overlap, especially in polysyllables. In ['kwälǝte] quality, for example, [ä] is the representative of the neutralised /a/ : /ɑ/ opposition rather than one of two possible alternants.

In marked contrast to Scots, the non-Scots dialects of HE do not have back reflexes of ME /a/. In SUE and southern HE the vowels in question are usually fully front and in fact often front-raised. (It will be recalled that the ME /a/ class underwent a phonemic split into short /a/ (fat) and long /a:/ (glass) in the ancestors of these dialects - see 1.3.2.) The vowels are realised as slightly retracted from cardinal 4 in Westmeath (Nally 1971: 33), roughly cardinal 4 in Dublin (Bertz 1975: 157), and raised [æ(:)] in Roscommon (Henry 1957: 23). In west Cork, the realisation ranges from cardinal [a(:)] to as high as [ɛ(:)] (Lunny 1981a: 53-55). At first sight it seems probable that the more conservative front realisations of /a/ in BV are English in origin via the more English-influenced HE rural dialects. This seems plausible, since there is a good case for assuming that the type of English spoken in Belfast before the large-scale influx of speakers from US areas was more like present-day SUE than is now the case. However, the picture is complicated by the fact that ESc /a/ underwent certain combinative developments which have resulted in its being realised as a front mid vowel in certain environments in present-day Scots.

Although the regular isolative development of ESc /a/ has been towards back [ɑ(:)] in the Scots source dialects of US, there has been a sporadic combinative change in the opposite direction. The vowel has been contextually merged with ESc /e/ through front-raising in alveolar and to a lesser extent velar environments. Thus from Wilson's reports on southwestern and central Scots, the following pattern of [ɛ(:)] from ESc /a/ is discernible (1923: 24; 1926: 25):[14]

(20)

_alveolars		_velars	
glad	arm	sack	jacket
brass	cart	thank	bracken
glass	flat	tackle	
ladder			

That this development has been sporadic is evidenced by the presence in these dialects of items with low back reflexes of ESc /a/ in these environments (e.g. <u>bad</u>, <u>lass</u>, <u>back</u>). The picture is rather similar in southern Scots. Besides the regular reflex of ESc /a/ in these dialects (i.e. [ɑ(:)] or [ɒ(:)]), there are irregular items with a low front vowel merged with the regular southern Scots lowered reflex of ESc /e/. Most of the irregular ESc /a/ items contain alveolars or velars. Some examples with [a(:)] or [æ(:)] from Wettstein (1942: 37) and Zai (1942: 23):

(21)

_alveolars	_velars	velars_
grass	sack	cabin
flat	Jack	cat
glad	jacket	
Saturday	back	
glass	thank	
path	black	

As the examples in (20) and (21) indicate, many of the irregular items with unbacked reflexes of ESc /a/ turn up in both central and southern Scots. What is striking is that most of these items also crop up in US with the same vowel. However, the front reflex of ESc /a/ in US is only irregular in alveolar environments (Gregg lists <u>brass</u>, <u>grass</u>, <u>glad</u> amongst others with /ɛ:/ (1959: 409)). Before velars, front-raising of ESc /a/ has been almost completely regular, unlike in the present-day dialects of Scotland. Gregg provides scores of examples with /ɛ:/ that confirm this, including the following from SUS (1964: 167):

(22)

_ /k/	_ /g/	_ /ŋ/
act	bag	bang
flax	drag	plank
hack	fag	angry
Jack	hag	slang
sack	slag	bank

The current situation in US suggests that the front-raising of ESc /a/ was more general in seventeenth-century Scots when Scottish settlers began arriving in the north of Ireland in large numbers. Perhaps by that stage the change was already in the process of being aborted. The residue of words containing mid front reflexes of ESc /a/ before alveolars which is common to US and the dialects of Scotland suggests that the change had already been abandoned in this environment at least by the seventeenth century. The fact that a front-raised reflex of ESc /a/ before velars is regular in US but residual in the dialects of Scotland indicates that the change was well advanced in this environment in seventeenth-century Scots and has only been reversed (apart from a few residual items) in Scotland since the Plantation of Ulster.

Front-raising of ME /a/ has not of course been restricted to Scots. The present value of RP /æ/ (i.e. between half-open [ɛ] and open [a]) is the result of front-raising, generally assumed to have occurred in SSE during the seventeenth century (see Lass 1976: 107). However, there is evidence of more advanced front-raising in certain consonantal environments in other dialects of England. In many southern dialects, front-raising of ME /a/ has proceeded as far as [ɛ]. This has not led to a total merger of ME /a/ and /e/. In some of these dialects, raising to [ɛ] has been favoured by following velars, resulting in only a contextual merger with ME /e/. In other environments, ME /a/ has generally but not categorically remained distinct at [æ]. This is clearly shown by the vowels in twelve items recorded by the Survey of English Dialects in six Sussex localities (see Tab 3-7).

Neither is front-raising of ME /a/ in velar environments restricted to southern dialects in England. Wright reports sporadic occurrences of a mid front vowel for ME /a/ before /k/ in much of the

Tab 3-7. Reflexes of ME /a/ before velar and nonvelar consonants in Sussex (from Survey of English Dialects Basic material).

Item	BAT	RAT	HAND	FLAP	MAN	RAM
Survey ref.	IV.7.7	IV.5.3	VI.7.1	VIII.14.16	VIII.1.6	III.6.8
Locality						
1	æ	ɛ	æ	æ	ɛ	æ
2	æ:	æ:	æ	æ	æ	æ
3	æ	æ	æ	-	æ	æ
4	æ	æ	æ	æ	æ	æ
5	æ	æ	æ	ɛ	æ	æ
6	æ	æ	æ	æ	æ	æ

Item	TAG	BAG	SACK	HANGING	WAGON	JACKET
Survey ref.	VI.14.26	V.8.5	1.7.2	IV.3.3	1.9.2	VI.14.5
Locality						
1	ɛ	ɛ	ɛ	ɛ	ɛ	ɛ
2	ɛ	ɛ	ɛ:	ɛ	ɛ:	ɛ:
3	ɛ	ɛ	ɛ	æ	ɛ	ɛ
4	-	ɛ	æ	ɛ	ɛ	æ
5	ɛ	æ	ɛ	ɛ	æ	æ
6	ɛ	æ	æ	ɛ	ɛ	æ

north of England (e.g. back, black, slack, flax, axe) as well as before /g/ (e.g. drag, hag, wag) and /ŋk/ (e.g. rank, thank) (1905: 23-29). In addition he notes the same vowel before other consonants, particularly alveolars, in a few items (e.g. ash, candle, hasp, fasten). A search of the Survey of English Dialects Basic material reveals that the mid front pronunciation has greatly receded since Wright's time, although /ɛ/ for ME /a/ is still widespread in a few specific items (e.g. sack, apple, carrots - Survey references I.7.2, IV.11.8, V.7.18).[15]

In the light of this dialect evidence, I think it is necessary to reappraise the significance of e-spellings of ME /a/ in EModE texts. These are taken by some writers to indicate confusion between the reflexes of ME /e/ and /a/, providing early evidence of the front-raising of the latter (e.g. Zachrisson 1913: 58-60; Wyld 1920: 198-199). Dobson rejects this interpretation on the grounds that native RP speakers do not confuse /ɛ/ and /æ/ today and that speakers of the ancestor dialect would hardly have done so either (1968: 549).[16] Kökeritz accepts that at least some of the e-spellings indicate early raising of ME /a/, but like Dobson he seeks to explain the majority of them away in diverse ways (1953: 163). Both writers claim that in some cases orthographic e represents ME /e/ occurring in words that formed doublets with ME /a/ (e.g. in happen, carrot, axle). Other explanations of the e-spellings advanced by Dobson and Kökeritz include the claims that they represent misreadings, misspellings, unstressed forms, Latin adoptions, Old French variants, or Middle Dutch borrowings.

A more unified account of e-spellings of ME /a/ can be achieved by turning to present-day dialectological evidence. In view of the occurrence of mid front realisations of ME /a/ in some regional dialects of England, it seems likely that the EModE e-spellings represent a similar pronunciation that encroached briefly on SSE, a possibility that Dobson only touches on in passing (1968: 551). That this pronunciation was stigmatised is evident from some of the comments made by writers in the seventeenth and eighteenth centuries. As late as 1809, Bachelor warns that 'the real exchange of a for e is the result of ignorance or affectation, by means of which certain words will cease to be distinguished in pronunciation' (quoted in Wyld 1920: 199). It has not generally been noted that the majority of EModE spellings of ME /a/ as e occur in velar environments. Examples cited by Wyld, Kökeritz and Dobson include: back, pack, sack, act, axle, action, rack, drag, thank, rank, Langworth, frankincense. A fair number of examples with following alveolars, particularly /n/, are also to be found, e.g. Cranmer, Andrew, Ann, sandle, Francis, January, glad, adder, sadness. Rhymes and puns also indicate a mid front pronunciation of ME /a/ before velars, e.g. back : neck; knack : neck; cracks : checks . Raising of ME /a/ to mid front position in these environments, as I have noted, is characteristic of some present-day regional dialects in England, including some that are spoken close to London. It is a plausible assumption that the e-spellings in standard EModE texts were symptomatic of a mid front pronunciation that was more general in the regional dialects of the time.

The tendency for (presumably palatalised) velars to condition front realisations of ME /a/ in EModE is confirmed by the fact that they protect the vowel from the otherwise general backing (and subsequent rounding) in the environment of preceding /w/. Thus although the reflex of ME /a/ in RP is /ɒ/ in for example wad, swan, wash, quarrel, it remains as a front vowel (/æ/) in e.g. wax, quack, wag, swank. In this context, Dobson remarks that palatalised velars strongly encouraged the raising of ME /a/ to [æ] (1968: 717), but he fails to take up the point in his main discussion of the change (545ff). Nor does he contemplate the possibility that this strong encouragement might extend to raising as far as [ε].

It is evident that the front-raising of ME /a/ to [ε] in EModE was firmly established in at least some of the regional English dialects that contributed to the early evolution of HE, implying that the BV /ε/ : /a/ merger in velar environments is not exclusively Scots in origin. This is borne out by the fact that the merger is reported, albeit sporadically, in southern HE dialects which were never subject to Scots influence. Lunny, for instance, records [ε] for ME /a/ before velars, and to a certain extent before palato-alveolars in west Cork but [æ] or [a] in other environments (1981a: 53).

To summarise the comparative evidence on /a/-backing and front-raising in BV. Front-raising of /a/ in velar environments is found in both Scots and non-Scots dialects of HE. This suggests a general EModE change common to many dialects in both England and Scotland. Backing of /a/ in nonvelar contexts on the other hand appears to be exclusively Scots in origin. Fully back and often raised and rounded reflexes of historical short /a/ occur regularly in CUS as well as in the dialects of Scotland. The English-based dialects of SUE and southern HE, on the other hand, regularly have fully front reflexes of the same vowel, often raised. The Scots origin of /a/-backing in BV is confirmed by the fact that the change is most advanced in east Belfast, an area of the city with a background of settlement from the US-speaking areas.

From these findings it is possible to conclude that the type of English initially spoken in Belfast after the Plantation regularly had front /a/ with a front-raised development in velar environments merged with /ε/. This is essentially the picture that can be derived from Patterson's 1860 account. The early dominance of English settlement in the city was subsequently offset by large-scale immigration from the originally Scottish-settled areas. The linguistic impact of this population movement was to introduce a US element into the evolving urban vernacular. Since Patterson's time, Scots influence on BV has been reflected in the increasing tendency for /a/ to be backed in nonvelar environments. The early tendency for /a/ to be merged with /ɛ/ in velar contexts was probably reinforced by the arrival of US speakers in Belfast, given that front-raising of ME /a/ was common to both Scots and English dialects in Early Modern times. Despite the fact that the /ɛ/ : /a/ merger in velar environments is apparently in the process of being reversed, the phonetic motivation of the original front-raising change is still active to the extent that the same environments continue to disfavour backing of /a/. On the face of it, the general trend of /a/-backing over the last century or so makes BV exceptional among those varieties in which changes affecting ME /a/ have been quantified. At least this seems to be the case, given Labov's contention that, according to a general principle of vowel-shifting, any quality change in 'tensed' (i.e. lengthened) reflexes of ME /a/ necessarily entails front-raising, as generally occurs in American English (Labov et al 1972: ch 4; Labov 1981).[17]

3.6.5 <u>Changes in /ɑ/ and /ɔ:/</u>. Variation in present-day BV /ɑ/, the isolative reflex of ME short /o/, spans a phonetic continuum from low central unround, through low back, to mid centralised-from-back round. For the purposes of quantification this continuum was intially divided into six variants reflecting different combinations of rounding, height, backness and length. The distribution of these variants across three classes of phonological environment in three Belfast areas is shown in Fig 3-4. As the diagrams indicate, variation in BV /ɑ/ is subject to clear but by no means categorical phonological conditioning. The vowel is typically short low unround in the 'short' environments _T and _C$ and long mid round in the 'long' environment _D. This pattern of distribution is most noticeable in the inner-city area of the Clonard (Fig 3-4a). One of the most striking points to emerge from Fig 3-4 is that, when short, BV /ɑ/ is almost categorically low unround in the inner-city but more often than not round (and sometimes mid) in the outer-city areas of Andersonstown and the Braniel. Moreover, short

(a)

(b)

(c)

Fig 3-4. % distribution of BV /ɑ/ (pot, pod) variants by following environment in two outer-city Belfast communities (Andersonstown, the Braniel) and one inner-city community (the Clonard).

/ɑ/ in the inner-city is overwhelmingly central [ä], a pronunciation that is almost totally absent from outer-city speech.

Given the generally conservative nature of inner-city speech, it might be expected that low unround realisations of BV /ɑ/ are older than mid round realisations. This is confirmed by nineteenth-century documentary evidence which also indicates that the low unround pronunciation was once much more widely distributed across phonological structure than is now the case. Patterson provides a list of ME /o/ items which he writes with a, indicating a lowered and unrounded reflex. Almost all the examples he cites with this pronunciation contain following labials, e.g.:

(23)

(a) _ /p/	(b) _ /b/	(c) _ /f/
top	job	off
stop	hob	soft
shop	lobby	loft

Patterson gives no indication of an allophonic distribution pattern that might correspond to today's mid/round vs low/unround arrangement. In Staples, however, we find a more detailed description of allophonic quality differences in /ɑ/. He describes one variant as 'mid back wide round' and another as 'low back wide unround' (1898: 387). Williams only mentions the mid round variant but makes no reference to environments in which Staples and Patterson indicate a low unround pronunciation. By combining the descriptions and examples provided by Patterson, Staples and Williams, we can get some idea of the allophonic characteristics of BV /ɑ/ in the mid-to-late nineteenth century. The distribution pattern looks something like this:

(24)

(a) Low unround

_ /p, b, f/	top, job, off
_ /t/	bots
_ C$	honour

(b) Mid round

_ /n, ŋ/	thon,[18] long
_ /d, g/	rod, bog
_ /s/	cross, lost

This is clearly only a skeleton outline, since we have no information on

/ɑ/ before consonants other than those given in (24). Nevertheless, even in its broadest outline, the distribution pattern is recognisibly similar to that of present-day conservative BV, with one notable exception. Among the labial consonants, which apparently all regularly conditioned low unround realisations of BV /ɑ/ in the nineteenth century, only /p/ continues to do so today. The vowel is now almost categorically mid round before /b/ and /f/, although a few relic forms with [ɑ:] persist in the most vernacular speech (particularly in job and off). Otherwise the nineteenth-century pattern of distribution coincides with that of the present: the consonants in (24b) remain characteristically 'long' and condition mid round realisations of /ɑ/; /p, t/ and C$ in (24a) continue to be 'short' environments, favouring low unround realisations of /ɑ/.

One question raised by Patterson's a-spellings of ME /o/ is whether or not the low unround reflex was merged with BV /a/, so that for example top = tap, job = jab, croft = craft. On the basis of Patterson's reports alone it is impossible to come up with a definite answer, given the problems of representing what may have been fine phonetic differences in gross orthographic terms (see 3.6.1). Once again we have to fall back on present-day comparative evidence. This suggests that ME /o/ and /a/ were indeed merged in Patterson's time before labials, the environment contained in almost all of his examples with a-spellings. Although low unround reflexes of ME /o/ are characteristic of all the non-Scots dialects of HE, it is only in CUS that a merger between historical short /a/ and /o/ is explicitly reported in labial environments. The merger is quite regular in CUS, and all the ME /o/ items spelt with a on Patterson's list occur with /ɑ:/ (= BV /a/) in this dialect (see Gregg 1959 (410) for examples). In fact the contextual merger of ESc /o/ and /a/ is a well-known feature of most modern Scots dialects. Wilson provides clear examples from both southwestern and central Scots (1923: 29; 1926: 32), as do Wettstein (1942: 39) and Zai (1942: 47) for southern Scots.

That is not to say, however, that low unround realisations of BV /ɑ/ are exclusively Scots in origin. After all, this pronunciation is also found in environments where US, both in its conservative and standardised forms, only has mid round /ɔ:/, specifically before /t, k/ and in polysyllables (see Tab 3-8).[19]

Tab 3-8. Mid round (O) vs low unround (A) reflexes of historical short /o/ in SUS, CUS and BV.

Following environment	p	b	f	t k	θ s	d g	l n	C$
SUS	O	O	O	O	O	O	O	O
CUS	A	A	A	O	O	O	O	O
BV	A	O	O	A	O	O	O	A
	top	rob	soft	got	loss	rod	doll	honour

Short low unround realisations of BV /ɑ/ in nonlabial environments appear to originate from English-derived HE dialects. It will be recalled that the equivalent vowels in SUE (i.e. /ɑ/ in cot and /ɑ:/ in loss) are generally low and unround in all environments (1.3.3). This is also true of southern HE: Roscommon and west Cork both have a range of variants from [ɑ̟(:)] to [a̠(:)] (Henry 1957: 23, 27; Lunny 1981a: 56-59), while Westmeath has [ɑ(:)] (Nally 1971: 33).

The lowering and unrounding of ME /o/ in England during Early Modern times is well-documented. From the fifteenth to the eighteenth centuries we find evidence from spellings, rhymes and the reports of orthoepists that a low unround pronunciation of ME /o/ was widespread in the regional dialects of England and to a lesser extent in SSE (Wyld 1920: 240-242; Dobson 1968: 576-581). The lowering has left its mark on RP (/ɒ/ in pot), although the unrounding which was once fashionable in the standard dialect has now been abandoned (apart from a few relic forms such as nap, sprat, strap, which contained ME /o/, and God when spelt Gad (Ekwall 1975: 40)). The low unround variant was certainly sufficiently well-established in the seventeenth century for it to become widespread in North America (Kurath 1928; Pilch 1955). The records of the Survey of English Dialects reveal that a low unround reflex of ME /o/ survives in some areas of England, particularly in the West Country and in a few relic areas of Norfolk and the west Midlands (Orton, Sanderson & Widdowson 1978: maps Ph 38-40). West Country and west Midlands dialects were among the most important contributors to the early development of HE, and it is more than probable that they provided the source of low unround /ɑ/ and /ɑ:/ in the non-Scots dialects of present-day HE.

It seems likely then that the low unround realisation of /ɑ/ before /p/ in present-day BV has its origins in both Scots and English dialects. The same realisation in other environments (specifically before /t, k/ and C$), however, appears to have an exclusively English background. The extent to which low unround /ɑ/ overlaps with /a/ reflects this diversity of dialect backgrounds. The Scots merger of historical short /a/ and /o/ before labials has now been reversed before /b/ and /f/ in BV (/ɑ/ being realised as mid round in these positions). Before /p/, however, the merger is very much still in force. Most of the speakers interviewed for the sociolinguistic study of inner-city Belfast were unable to differentiate such pairs as top : tap, chop : chap and mop : map. In other environments, however, the overlap between /a/ and low unround /ɑ/ is only variable and speakers seem able to implement strategies for segregating the relevant word-classes, e.g. by back-raising and rounding /ɑ/. In this way it is usually possible for BV speakers to differentiate such pairs as Pat : pot, hallow : hollow and barrow : borrow. In velar environments, there is never any question of confusion between the /a/ and /ɑ/ classes, partly because /a/ is usually fully front in this context (see 3.6.4), but more importantly because the velar is usually palatalised before or after /a/ but never so in the neighbourhood of /ɑ/. Thus [sɛk̟], [sæk̟], [sa̤k̟] sack vs [sa̤k] sock; and [k̟ɛt], [k̟æt], [k̟a̤t] cat vs [ka̤t] cot. Fluctuating overlap between the ME /a/ and /o/ classes is also characteristic of the non-Scots dialects of HE. Both Henry (1957: 27) and Lunny (1981a: 55-58) observe a certain amount of overlap between /a/ (in Pat) and /ɑ/ (pot) and between /a:/ (aunt) and /ɑ:/ (haunt) in Roscommon and west Cork, which occasionally leads to confusion over word-class assignment.

As far as long mid round realisations of BV /ɑ/ are concerned, there can be little doubt that they are Scots in origin. Similar pronunciations of the equivalent vowels are found nowhere in the English-derived dialects of southern HE. In fact Barry (1981a) takes this to be one of the defining features of northern HE in relation to southern dialects. In CUS the isolative reflex of historical short /o/ (i.e. in nonlabial environments) is long mid round /ɔ:/. This is quite clear from Gregg's descriptions of the dialect (e.g. 1959: 411). The mid round pronunciation is usual in Scotland as well. Wilson reports half-open or half-close back round reflexes in southwest and central Scotland (1923: 29; 1926: 32). For southern Scots, 'mid back wide round' is recorded by Murray (1873: 111) and half-close centralised round by Wettstein (1942: 3) and Zai (1942: 11).

In CUS the isolative development of ESc /o/ is merged with historical /au/ (< ESc /au/, /al/ and /ou/ before /x/) under /ɔ:/, so that stock = stalk. There is no indication of merger between ESc /ɔ:/ and /o/ (coat = cot), as has happened in many of the dialects of Scotland (see Catford 1957). The merger of historical /o/ and /au/ under a mid back round vowel is also characteristic of Scottish English and some broad Scots dialects (Catford 1957 cites Bute as an example). Elsewhere in Scots, historical /au/ has either merged with ESc /a/ (so that fault = fat) or maintained an independent existence as a low back vowel. There are relics of this last vowel in a few outlying CUS areas, e.g. Donegal (Gregg 1972: 124-125). However, the merger of historical /au/ and /o/ under /ɔ:/ is the most widespread development in US.

In SUS the ESc /au/: /o/ merger is total, since words with CUS /ɑ:/ < ESc /o/ before labials have been transferred into the /ɔ:/ class. In SUE and southern HE, on the other hand, the equivalent historical vowel contrast has been largely maintained as a length distinction: thus /ɑ/ < ME /o/ (cot) vs /ɑ:/ < ME /au/ (caught). In these dialects, there has been a limited contextual merger of the historical contrast, resulting from ME /o/ items being transferred into the ME /au/ class through lengthening before /f, θ, s/. (This neutralisation has not involved any large-scale homophone clash, since there are relatively few examples of historical /au/ in this environment (e.g. sauce). This is in marked contrast to the situation in many nonrhotic dialects of English, where the ME /au/ class (e.g.

/ɔ:/ in RP) has been swollen by the wholesale addition of ME /ɔ:r/, /or/ and /o:r/ words (so that for instance sauce = source, paw = pore = poor).)

The fate of the ME /o/ and /au/ classes in BV clearly reflects a tension between the two distinct patterns of the hinterland dialects: the typically Scots pattern in which they are merged and the English pattern in which they are generally distinct. The extent to which the classes are found to have merged in BV will presumably be a measure of US influence. It will be recalled that BV /ɔ:/ retains phonemic length in all stressed contexts (1.4.1). This means that it is generally distinct from /ɑ/ wherever the latter is short (i.e. before T or C$). Thus in most types of BV, cot is distinct from caught and body from bawdy. However, wherever /ɑ/ is long (i.e. before D), there is a potential for overlap. In 5.3.7 I undertake a quantitative analysis to establish the extent to which this potential overlap actually occurs. It turns out that for some BV speakers the /ɔ:/ : /ɑ/ opposition is categorically neutralised under a mid round vowel before D (so that don = dawn). In fact the analysis in 5.3.7 shows that none of the speakers studied categorically maintains the /ɔ:/ : /ɑ/ contrast in this environment. For some speakers, however, the opposition is potentially maintained before D by dint of the fact that /ɔ:/, while often overlapping with long /ɑ/, may variably appear with a characteristically lower vowel than the usual mid realisation of /ɑ/ in this context.

Bearing in mind the general principle that mergers tend to expand at the expense of distinctions, it would be natural to assume that the /ɔ:/ : long /ɑ/ contrast is an older feature of BV than the merger. If this is true, then what we are witnessing in the present-day variable overlap of the two vowels before D is possibly the final stages of contextual merger in progress. This assumption is confirmed by several factors. Firstly, given that the type of English initially spoken in Belfast before the influx of US-speakers was more like present-day SUE, which does not have the merger, it is likely that the maintenance of the distinction is a survival of an older, characteristically English pattern. This pattern has apparently been altered through competition with a newer, typically Scots pattern of merger. Secondly, the assumption of a Scots background to the merger is borne out by the fact that almost all the speakers who show categorical neutralisation of the /ɔ:/ : long /ɑ/ contrast are from east Belfast with its strong US connections. Maintenance of the distinction, if only variable, is typical of speakers from west Belfast which has a background of settlement from the SUE area. Finally, there is reasonably clear documentary evidence which suggests that /ɔ:/ and long /ɑ/ were generally distinct in nineteenth-century BV.

Patterson records a number of BV /ɔ:/ words with a pronunciation which he represents with a, e.g. cral, fan, sa for crawl, fawn, saw. This presumably indicates a low and probably unround vowel. A more detailed indication of the quality is provided by Staples who describes the vowel in a similar set of words as long 'low back wide half-rounded' or completely unround (1898: 376). It is significant that none of the words recorded as having this low pronunciation belong to the /ɑ/ class. Elsewhere, as we have seen, Staples characterises the latter as mid round when long. From these descriptions we can conclude that, in the mid-to-late nineteenth century, the forerunner of present-day BV /ɔ:/ was something like [ɑ:], possibly with a rounded variant [ɒ:], while /ɑ/ in 'long' environments was mid round, as it generally is today. As we shall see in 5.3.7, [ɑ:] or [ɒ:] realisations of /ɔ:/ still survive in conservative west Belfast speech. It looks very much as if the /ɔ:/ : /ɑ/ distinction was at least potentially maintained in most environments in nineteenth-century BV. In other words, the situation was more like that in SUE than is now the case.

From a combination of evidence from historical records and present-day variation, it is possible to detect a shift in both the quality and distribution of BV /ɔ:/ and /ɑ/ away from a characteristically English pattern in the direction of a typically Scots one. There has been a progressive raising of BV /ɔ:/ over the last century or so from a low unround position that is typical of SUE and southern HE to a mid round position which is the most widespread quality of the equivalent US vowel. This raising is leading to a merger of /ɔ:/ and /ɑ/ in contexts where the latter is long.

The English origin of the older, low unround realisation of BV /ɔ:/ is confirmed by comparative dialect evidence. Not only is this the usual realisation of the equivalent vowel in the English-based dialects of SUE and southern HE (i.e. /ɑ:/), but it is also characteristic of some dialects in England. Luick claims that the first stage in the development of ME /au/ to RP /ɔ:/ was [ɑ:] (1921: ¶180). Dobson 1968: 783ff) and Kökeritz (1953: 180), however, argue that the low unround monophthong was restricted to regional dialects. Certainly this is the position in England today, as the records of the Survey of English Dialects show. A few relic areas with [a:] or [ɑ:] for ME /au/ are to be found in Northumberland and the West Country (Orton, Sanderson & Widdowson 1978: maps Ph 170, 171). The West Country dialects are most likely to be the main source of the low unround quality of southern HE and SUE /ɑ:/ as well as of the older realisation of BV /ɔ:/.

3.6.6 Changes in /ɛ̈/ and /ɔ̈/. Variation in BV /ɛ̈/ ranges on a continuum from [ɩ] to [ɛ̈]. For the purposes of quantification, three variants were recognised and assigned index values: a relatively high variant (000),a relatively low and heavily centralised variant (200)and a variant of intermediate quality (100). Figures calculated on this basis for three inner-city communities in Belfast are given in Tab 3-9. The index scores show the variable to be a stable marker of age, sex and style in Ballymacarrett. In Clonard, however, variation in /ɛ̈/ is apparently not perceived by younger speakers as a stylistic marker. Moreover, in comparison to Ballymacarrett and the Hammer, the older men

Tab 3-9. Index scores measuring incidence and degree of lowering and centralisation in BV /ɛ̈/ (bit, fill) (max 200) in three inner-city Belfast communities: Ballymacarrett (B), the Clonard (C) and the Hammer (H). Interview style (IS) and spontaneous style (SS).

		Men 40-55	Women 40-55	Men 18-25	Women 18-25
B	IS	89	52	111	38
	SS	127	113	135	147
H	IS	103	87	129	94
	SS	132	126	138	138
C	IS	35	102	126	94
	SS	56	137	119	99

in the Clonard have very low index scores, indicating a high incidence of close /ɛ̈/ realisations. It is difficult to determine whether these changes are symptomatic of change in progress by reference to real-time evidence, since this is fairly sparse. Patterson lists four /ɛ̈/ items with e-spellings which indicate a nonhigh vowel: red, merricle, kendle, rensh for rid, miracle, kindle, rinse. In all likelihood, however, these words contained /ɛ/ (in bed), since the same items contain the equivalent vowel (/ɛ:/) in CUS (Gregg 1959: 410). Other writers provide conflicting reports of BV /ɛ̈/. Biggar describes it as 'something between short u in pun and short a in pan' (1897: 9). Whatever else this may imply, it certainly indicates a relatively low vowel. Staples, on the other hand, reports the vowel as 'high mixed wide' (1898: 374). These two descriptions suggest a pattern of variation in the pronunciation of BV /ɛ̈/ in the late nineteenth century which was very similar to that of today.

It is possible to interpret present-day areal differences in the realisation of /ɛ̈/ in terms of different dialect backgrounds. Lower realisations are typical of the equivalent vowel in CUS (i.e. /æ̈/), while SUE almost exclusively has a relatively high vowel here (i.e. /ɩ/). It is natural therefore to find a greater proportion of high /ɛ̈/ in the Clonard (especially among older men) where the most influential hinterland dialect has been SUE. It is probable that high realisations of the vowel are also characteristic of the initially English-type dialect spoken in Belfast before the large-scale influx of Scots forms.

The realisation of BV /ɔ̈/ (cut, blood) varies between round and unround. As the figures in Tab 3-10 indicate, the incidence of rounding is clearly marked for sex and to a lesser extent style (especially among older women). The fact that the highest incidence of rounding occurs among men, who are generally linguistically conservative, suggests that the round variant is the older one, a suggestion that is supported by the fact that rounding in this vowel is a rural stereotype throughout HE. In Patterson's day the rounded variant appears to have been widespread in BV, since he provides a long list of /ɔ̈/ items spelt with o, e.g. torpentine, onwell, ondergo for turpentine, unwell, undergo.

Tab 3-10. % scores measuring incidence of lip-rounding in BV /ɔ̈/ (cut, blood) in three inner-city Belfast communities (area totals aggregated and averaged). Interview style (IS) and spontaneous style (SS).

	Men 40-55	Women 40-55	Men 18-25	Women 18-25
IS	44.7	26.1	42.2	27.6
SS	51.0	38.2	46.2	29.9

The unround pronunciation is typical of the equivalent US vowel (i.e. /ʌ/) (although rounded variants are found in the outlying CUS areas of Donegal, according to Gregg 1963: 81). The corresponding vowel in SUE is round [ö] or [ɔ̈], which is probably the quality the vowel had in the early stages of Belfast dialect. It is possible to detect in the changes that are affecting BV /ɛ̈/ and /ɔ̈/ (lowering in the former and unrounding in the latter) a shift away from older, English-type norms towards more US pronunciations.

3.7.0 Consonant changes in BV

3.7.1 HE and the Irish 'substratum'. One of the primary concerns of most studies on HE has been to establish a connection between its non-standard characteristics and Irish Gaelic. Usually this has involved invoking some form of 'substratum' theory, according to which nonstandard aspects of HE phonology, syntax and lexis are considered to have arisen initially as a result of Irish interference in the speech of Irish-English bilinguals. These interference phenomena are considered to have persevered even in those parts of Ireland where Irish has now died out as a first language. Typical statements of this view include the following:

> Those who are familiar with the linguistic realities in Ireland cannot fail to recognise the powerful and omnipresent force exerted by the submerged Gaelic (and sometimes, we may presume, even pre-Gaelic) dialects. It may thus be more accurate to say that, from the viewpoint of diachronic phonology, what we are faced with is often a sound-substitution from the substratum Gaelic rather than an internal phonetic change (Gregg 1959: 401).

> The phonemic repertoire [of HE: JH] is that of seventeenth-century English, but the sounds are the sounds of Irish: that is, the Irish-speaker learning English accepted the framework of the English phonemic system, but filled each place in the pattern with one of his own sounds (Bliss 1972: 64).

Barry (1981a) goes so far as to suggest that ancient pre-English linguistic boundaries dividing the north from the south of Ireland have left their mark on the present dialect geography of HE.

There can be little doubt that at least some nonstandard features of HE are Irish in origin. This is particularly clear in the speech of Irish-English bilinguals and in areas where Irish was spoken until fairly recently (see Henry 1977; Ní Ghallchóir 1981). Cross-linguistic borrowing and interference are most readily recognisable at the level of lexis (see Henry 1964; Todd 1975). There is also a good case to be made for regarding certain features of HE syntax as stemming at least partly from Irish (see Bliss 1972; Todd 1975; Harris 1982). Writers seeking to demonstrate Irish influence at the phonological level have generally concentrated on isolated nonstandard features. Several studies, however, have sought to place these features in the wider context of the phonological systems of Irish and HE as a whole (Adams 1966, 1980; Bliss 1972; Todd 1975: 51ff; Lunny 1981a: 145ff, 1981b). Particular attention has been paid to features of HE consonant phonology that do not appear in standard dialects. While it is true that some of these features can be ascribed to Irish interference or perhaps to general processes associated with language contact, many writers have neglected to acknowledge the presence of a number of these features in sixteenth- and seventeenth-century SSE. Moreover, most have overlooked the fact that almost all the features in question are attested in present-day regional British varieties and some in American English. In what follows, I seek to redress this imbalance by focusing on the link between regional British English and HE at the level of consonant phonology. I will illustrate the connection by looking at some of the nonstandard consonant pronunciations for which Patterson castigated speakers of nineteenth-century BV and by examining how these have changed over the last 120 years or so.

3.7.2 Dentality, palatalisation and the basis of articulation. Two characteristics of HE consonant phonology that are consistently ascribed to Irish interference are the realisation of /t, d, n, l/ as dentals and /k, g, ŋ/ as palatals in certain phonetic environments. Both of these pronunciations are remarked on by Patterson.

All conservative HE dialects, both northern and southern, have dental noncontinuants. (I am assuming here that /l/ is [-continuant]: see the discussion in 2.6.5.) In some cases, the dentals correspond to standard alveolar consonants in all positions. In most types of HE, however, their distribution is more restricted. In general, standard alveolar stops are only represented by dentals in particular /r/-environments. In southern HE, the dental plosives may also correspond to standard dental fricatives, e.g. [t̪ʰɪn] thin, [bɹɛt̪] breath. In most southern types, the standard /t/ : /θ/ and /d/ : /ð/ oppositions are maintained by the place feature alone (i.e. [t] vs [t̪], [d] vs [d̪]), although they may be neutralised in favour of dentals in /r/-environments, so that tread = thread [t̪ɾ̥ɛd]. In northern HE, stopping of /θ, ð/ generally does not occur (except in a few peripheral areas). The correspondences between dental and alveolar obstruents in RP, southern HE and northern HE can be summarised as follows:

(25)

	RP	sHE	nHE
through	θ	t̪	θ
true	t	t̪	t̪
too	t	t	t

In fact the dental series in HE extends beyond obstruents to include the sonorants [n̪] and [l̪]. The full statement of the conditions on the distribution of dental noncontinuants (i.e. all dentals apart from /θ, ð/ in northern HE is as follows:

(26)

$$\begin{bmatrix}\text{-cont}\\ \text{+cor}\end{bmatrix} \longrightarrow [\text{dental}] \;/\; \_\_\; (\text{ə})\text{r}$$

(26) produces the following typical realisations:

(27)

[t̪ɾ̥ɪən]	train	[ˈbɔ̈t̪əʴ]	butter
[d̪ɾɪən]	drain	[ˈɹɔ̈d̪əʴ]	rudder
		[ˈpɛ̈l̪əʴ]	pillar
		[ˈspän̪əʴ]	spanner

Dental realisations of /t, d, n, l/ in /r/-environments appear to have been widespread in nineteenth-century BV. Patterson provides a long list of words containing tth or dth spellings before /r/ or er which can be assumed to represent this pronunciation. Quantitative analysis of the distribution of dentals in present-day BV reveals that the pronunciation still survives but is very much in recession. The figures in Tab 3-11 and Tab 3-12 show the incidence of dental /t, d/ in three inner-city Belfast communities. The alveolar vs dental variable is a classic example of a sociolinguistic marker, being sensitive to the factors of age, sex, area as well as style. The age-grading in

Tab 3-11. Incidence of dental /t, d/ in inner-city BV, graded by age, sex and style. % presence of dentality.

	CS	IS	WL
Men	30	30	20
Women	7	9	1
Boys	18	15	9
Girls	4	3	1

Tab 3-12. Incidence of dental /t, d/ in inner-city BV, graded by area and style (age and sex scores conflated). % presence of dentality.

	CS	IS	WL
Clonard	22	22	12
Ballymacarrett	11	11	10
Hammer	10	10	2

particular, taken in conjunction with comparative and real-time documentary evidence indicates that the older, typically rural dental pronunciation is giving way to a more standard alveolar realisation. Not surprisingly, the highest incidence of dental /t, d/ is to be found among the linguistically conservative older males of Catholic west Belfast (Clonard).

Another feature of HE consonant phonology that has generally been ascribed to Irish influence is the often extreme palatalisation of velars in the environment of front vowels. In word-initial position, this palatalisation has in many cases produced fully palatal [c, ɟ], e.g. [cæt] cat, [ɟæp] gap. This often involves a collapse of the distinction between /kj/ and /tʃ/ under [c], e.g. [cʉb] cube, tube.[20] In northern HE, palatalisation has been preserved in the environment of originally front vowels that have subsequently become retracted, e.g. MUE /ɛ̈/ < historical /i/ (kick), /a/ in 'backing' environments (car, gas). It is common in conservative speech for a palatal glide to be present between the palatalised consonant and the retracted vowel. This is particularly noticeable in the case of /a/, as the following MUE forms illustrate:

(28)

Initial /k, g/

_ /a/		_ /ɑ/	
[cjɑ:n]	can	[kɔ̈:n]	con
[ɟjɑ:s]	gas	[gɔ̈:n]	gone

Final /k, g, ŋ/

/a/ _		/ɑ/ _	
[sæk̟]	sack	[sɑk]	sock
[bɛ:g̟],[baɩg̟]	bag	[bɔ̈:g]	bog
[ɹɛ:ŋ̟],[ɹäɩŋ̟]	rang	[ɹɔ̈:ŋ]	wrong

That the palatal pronunciation was current in nineteenth-century BV is confirmed by Patterson's explicit discussion of it (1860: 18) and by the long list of words he cites as containing the 'inelegant' palatal glide. In present-day BV, however, the glide is very much a rural stereotype. The recessive nature of the pronunciation is indicated by the fact that it is now almost entirely restricted to older male speakers, being particularly prevalent among the linguistically conservative men of Catholic west Belfast (Clonard) (see Tab 3-13).

Tab 3-13. Incidence of palatal glide between /k, g/ and /a/ (e.g. in car, garden) among men in three inner-city Belfast communities.

Clonard	Hammer	Ballymacarrett
62%	14%	0%

Almost all writers on HE explicitly attribute dentality in /t, d, n, l/ and palatalisation in /k, g, ŋ/ to Irish interference, noting that these pronunciations are not found in British English (at least not in the mostly standard varieties they are apparently familiar with). Attention is usually drawn to the phonetic similarity of HE dental noncontinuants to the homorganic Irish 'broad' (i.e. nonpalatalised) consonants and/or of HE palatalised /k, g, ŋ/ to the homorganic Irish 'slender' segments (Adams 1966, 1980; Bliss 1972; Henry 1957, 1958; Hogan 1927; Hughes 1966; Lunny 1981a, 1981b; Ní Ghallchóir 1981; Sullivan 1976, 1980; Todd 1975). However, almost all of these accounts overlook the fact that similar realisations of these consonants crop up in other nonstandard dialects of English besides HE. (A notable exception is Gregg, no date. Adams (1967) acknowledges the possibility of a northern English background to dental /t, d/, but he declines to take this up in his discussion of Irish influence on HE consonant phonology in 1966 or 1980.) In these dialects, it is not only the phonetic realisation of the equivalent consonants that is identical to HE but also the phonological conditions under which they occur. Palatalised /k, g/ with an accompanying glide in the neighbourhood of low, historically front vowels (as in (28)) appear sporadically in the records of the Survey of English Dialects. This pronunciation is most commonly found in the west Midlands, one of the most important source areas as far as the development of the English-based varieties of HE are concerned (see especially the items <u>cat</u> (Survey ref. III.13.8), <u>carrots</u> (V.7.18) and <u>cabbage</u> (V.7.18) in Orton & Barry 1969). Similar realisations of /k, g/ are reported for many dialects in the coastal South of the USA (Kurath & McDavid 1961: 175), as well as for Jamaican and Guyanese Creole (Cassidy & Le Page 1967: lviii; Alleyne 1980: 59).

The wide geographical distribution of present-day dialects in which the phonetically conditioned palatalisation of historical velars occurs points to a common source in EModE. There is plenty of evidence that this pronunciation was current in SSE during the eighteenth century (Dobson 1968: 952). First reports of the development in this dialect go back to the early seventeenth century (Robinson mentions it in 1617), but the fact that it was exported to Ireland and the New World suggests that it was already well established in nonstandard English before this date. This is confirmed by Wallis' 1653 description of palatalisation as being typical of Midlands usage (Dobson 1968: 952). The palatalised pronunciation survived in standard speech into the nineteenth century, but by 1860 Patterson notes that its recommendation in Walker's 1791 dictionary no longer reflected 'well-educated' usage. By the end of the nineteenth century the pronunciation was regarded as decidedly 'old-fashioned' (Sweet 1908: 135).

There is evidence that phonetically conditioned dentality in HE /t, d, n, l/ also has its origins in British English. Although this pronunciation apparently never penetrated into SSE, it is found in some present-day nonstandard regional dialects in England. Wright notes dental reflexes of /t, d/ in Cumberland, Westmorland, Lancashire, Yorkshire and the Isle of Man, as well as in Ireland (1905: 229, 231). In most cases he transcribes the dentals as tþ or dð, which at first sight indicates an affricated realisation. (On dental spirant reflexes of /t, d/ more below.) This is partly borne out by the more recent transcriptions of the Survey of English Dialects which sometimes record [t̪θ] or [d̪ð] in the areas mentioned by Wright. However, since dental /t, d/ are usually realised as stops in Ireland (affricates do occasionally occur), we must assume that Wright's tþ and dð are sometimes also intended to represent dental stops, for which his phonetic notation system makes no provision. This is further supported by the Survey of English Dialects transcriptions for the north of England which show that, while dental /t, d/ may appear as affricates in medial position, they are most often realised as stops, particularly in initial clusters (see Kolb 1966: 368ff). Whatever the exact manner-of-articulation features of dental /t, d/ in the dialects in question, one important point is beyond doubt. The distribution of the dentals by phonetic environment in the northern English dialects recorded by Wright and the Survey is identical to that in many types of HE, i.e. they are restricted to the context of following /r/ or /ər/, as in tree, street, better, drop, cinder. This clearly suggests that dental noncontinuants in HE stem at least in part from nonstandard British English sources.

As has already been pointed out, some types of HE have dental reflexes of /t, d, n, l/ in all phonetic environments. Here the case for a background in Irish interference may be stronger, although this pattern of distribution is also apparently to be found in some Scots and United States varieties.[21] In BV, context-free dental realisations of /t, d, n, l/ are restricted to conservative Catholic west Belfast which has a history of connections with the Irish-speaking areas of west Ulster. What is striking about the social distribution of this pronunciation is that it coincides closely with that of palatalised /k, g, ŋ/. This might be regarded as no more than a historical accident, were it not for the fact that high incidences of dentality and palatalisation also correlate with a high degree of front and raised realisations of /a/. It is possible that these correlations stem from a forward-skewed basis of articulation that is typical of conservative HE, including west Belfast BV. The notion of whole-tract adjustment in speech production was current among late nineteenth-century phoneticians (e.g. Sweet 1892, Sievers 1901) and has more recently been developed by among others Delattre (1951), Honickman (1964), Malmberg (1963), Drachman (1973) and Laver (1980). It is significant that Williams, who was a student of Sweet's, makes explicit reference to the basis of articulation in his description of northern HE in 1903:

> In Northern Irish [i.e. northern HE: JH] the back of the tongue is slightly raised and the whole tongue is pushed forward, the tip lying a little depressed and slightly touching the lower teeth. The consequence of this is that the characteristic concavity of the English position is almost lost... This raising and fronting of the tongue is altogether unfavourable to the production of velar (back) vowels, and to some extent also of consonants. Hence a quite noticeable tendency towards palatalisation as compared with Normal English [SSE: JH] and at the same time a favouring of the mixed [central: JH] vowels (130).

This description confirms that the forward-skewed setting which is typical of much present-day west Belfast and rural HE speech represents the survival of an older basis of articulation type. Some of the developments that are currently occurring in progressive BV, such as /a/-backing and the loss of palatalisation in /k, g, ŋ/ and dentality in /t, d, n, l/, might plausibly be subsumed under a unified process of retraction which is the result of abandonment of the older forward-skewed articulatory setting.

3.7.3 Lenition of intervocalic apicals. The remaining developments in BV consonant phonology that I deal with in this section can all be shown to have parallels in dialects of English besides HE. Three such developments, which can conveniently be treated together, involve the lenition of apical obstruents, whereby /t/ ——>[ɾ], /d/ ——> [ð] and /ð/ ——> ∅ in intervocalic position.

Patterson provides a couple of examples of d-spellings for intervocalic historical /t/: Proddisin, redicule for Protestant, reticule. This certainly indicates intervocalic voicing (i.e. 'sonorisation' in terms of Lass & Anderson's 1975 model of articulatory strength: see 2.1), although it is not immediately clear from the spelling alone whether or not a tap is intended. However, from Staples' (1898) explicit account of the phenomenon it is evident that intervocalic tapped /t/ was current in nineteenth-century BV.

The lenition of intervocalic /t/ is of some antiquity in English. Wyld provides examples of d-spellings of /t/ in this position that date from a period spanning the fifteenth to early eighteenth centuries, e.g. prodistants, medigate, treded for Protestants, mitigate, treated (1920: 312-313). The form porridge for earlier pottage, which dates from the early sixteenth century (Dobson 1968: 956), is probably a related example of lenition. The present-day standard [ɹ] in this word presumably developed from /t/ via a tap. The approximant pronunciation in this example may indicate an isolated borrowing into SSE from the north of England where this lenition is now widespread wherever /t/ appears morpheme-finally after a short vowel and before another vowel, e.g. [gɛɹɒf] get off, [pɔɹɩŋ] putting.

Tapped reflexes of historical intervocalic /t/ are widespread throughout the English-speaking world today. Besides occurring regularly in HE (including BV), this feature is of course well-established in North America. Wright records the pronunciation in several areas of England but comments that it is particularly prevalent in the southwest (1905: 228). This is confirmed by the Survey of English Dialects (Orton & Wakelin 1967) and for Dorset by Widén (1949: 90). The Survey also records tapped medial /t/ in a small enclave of mid-Cambridgeshire and northwest Essex (Orton & Tilling 1969). Tapping is also found to a certain extent in London English and some types of RP (Wells 1982: 299, 324-325).

Patterson lists a number of words in which historical /d/ is represented as th in the context [+sonorant] _ /ər/: ladder, bladder, fodder, consider, solder. The spelling presumably indicates a voiced dental fricative, since that is the pronunciation all of these items have in rural northern HE today. All of the words in question now categorically contain standard /d/ in present-day BV. The dental fricative here probably stems from British English dialects in which the spirantisation of OE intervocalic /d/ in the context V_/ər/ was completely regular.[22] The change, which Dobson dates to around 1400 (1968: 956), never went to completion in SSE, so that father, mother, weather for example show lenited OE /d/, while ladder, fodder, powder retain the historical plosive.

The opposite process whereby early ME /ð/ became /d/ is illustrated by three items on Patterson's list: fardest, farding, faddom for farthest, farthing, fathom. Historically the process consists of two separate but related changes: stopping of historical /ð/ before /m, n, l, r/ (as in fathom < OE fæþm) and stopping of /ð/ after /r/ which Dobson puts somewhat later (1968: 954-955) (as in farthest, farthing). Burden and murder show the results of the latter change in SSE and related dialects. During Early Modern times there was considerable variation between /ð/ and /d/ in these contexts before the present standard pattern of distribution became stabilised. The pattern in present-day BV corresponds largely to that of SSE. However, the non-standard use of /ð/ in place of standard /d/ (in ladder, fodder, etc.) and /d/ in place of standard /ð/ (in fathom, farthing, etc.) which was current in nineteenth-century BV is still to be found in some nonstandard regional dialects in Britain today. The Survey of English Dialects notes /ð/ for standard /d/ in e.g. spider, ladder (items IV.8.9, I.7.14) in pockets of the north, West Country and the Midlands, as does Widén (1949) for Dorset. Plosive realisations of standard /ð/ in medial position are also reported for Scots (Wilson 1923: 23; 1926: 23) and English dialects (see Orton et al 1978: maps Ph 237-238) (cf. southern United States further with medial /d/).

One nonstandard characteristic of present-day BV consonant phonology that is conspicuously absent from Patterson's pamphlet is the deletion of /ð/ between a vowel and /ər/, as in brother, together, bother, etc. We might therefore suspect this to be a recent innovation that has developed since Patterson's day. After all Patterson was quick to point out and correct pronunciations which were less markedly nonstandard than this one. However, there are two pieces of evidence which force us to conclude that /ð/-deletion is not a recent innovation (indeed it appears to be of some antiquity) and that in this instance Patterson committed an oversight.

The socially stratified distribution of /ð/-deletion in present-day BV suggests that pronunciations such as ['mɔ̈:əʴ] mother, ['bɹɔ̈:əʴ] brother represent conservative rather than progressive usage in Belfast.[23] The figures in Tab 3-14 indicate that by far the highest incidence of /ð/-deletion is to be found among males, who as we have seen consistently show themselves to be linguistically conservative on other sociolinguistic variables. They could of course be behaving anomalously with respect to this particular feature, but this seems unlikely in view of the fact that it is also characteristic of conservative rural MUE, e.g. in Tyrone (Todd 1975: 58).

Tab 3-14. % deletion of intervocalic /ð/ in three inner-city Belfast communities: Ballymacarrett (B), the Hammer (H) and the Clonard (C). Interview style (IS) and spontaneous style (SS).

		Men 40-55	Women 50-55	Men 18-25	Women 18-25
B	IS	56	32	80	21
	SS	89	44	89	15
H	IS	54	31	74	34
	SS	56	63	88	57
C	IS	63	33	88	38
	SS	62	53	91	70

There is documentary evidence to suggest that deletion of intervocalic /ð/ has a long history. Kökeritz discusses a number of historically disyllabic words which appear in Shakespeare as monosyllables with deleted medial /ð/, including whether, brother, father, mother, gather (1953: 321-322). There is little mention of this change in the main dialectological works, although Wright records it in whether for Dorset, Somerset and Wiltshire (1905: 239). It is possible that the deletion goes even further back to ME where we find or < OE ōþer, er < either and ner < neither.

3.7.4 Other consonant changes. Patterson criticises the pronunciation of standard /s/ as /ʃ/ particularly word-finally in nineteenth-century BV, e.g. in fleece, grease, mince. This stems from an earlier change in English and Scots which several seventeenth- and eighteenth-century orthoepists describe as a vulgarism (Dobson 1968: 947). The palato-alveolar pronunciation survives in pockets all over Britain. Wright reports it in southern Scotland and northern England (1905: 245), Wilson in central and southwest Scotland (1923: 23, 1926: 24) and Widén in Dorset (1949: 86) (see also Kolb 1966: 382). It is unlikely that this pronunciation has anything to do with the differently distributed palatalisation of standard /s/ that is found in the south-west of Ireland. The latter realisation is restricted to initial clusters (e.g. [ʃləid] slide, [ʃtɩk̟] stick) and is in all likelihood due to Irish interference (see Lunny 1981a: 99).

Patterson also decries the use in nineteenth-century BV of /s/ in place of standard /ʃ/ before /r/ in initial clusters, e.g. sriek, srewd, srug for shriek, shrewd, shrug. This pronunciation which is also recorded in west Cork (Lunny 1981a: 99), clearly has its origins in nonstandard regional accents of England. Wright reports it as being characteristic of many Midland dialects (1905: 248); this is borne out by the Survey of English Dialects (see shrew (item IV.5.2) in Orton & Barry 1969 and Orton & Tilling 1969).[24] Since Patterson's time of writing both nonstandard /ʃ/ in place of standard final /s/ (mince, grease) and /sr/ in place of /ʃr/ have died out completely in BV.

A hallmark of nonstandard consonant phonology all over the English-speaking world is cluster reduction, and BV is no exception in this respect (see L. Milroy et al 1983: 37-38). There is ample documentation of consonant deletion in both standard and nonstandard dialects from ME times up to the present. Some of the deletion processes have left their mark on SSE and related dialects, such as loss of final voiced plosives after velar and labial nasals (e.g. sing, lamb) and loss of /t/ between a fricative and syllabic /l/ or /n/ (e.g. listen, often, thistle). Other deletion processes which affected SSE only sporadically and have since been reversed survive in regional nonstandard varieties, e.g. New York City (Labov 1972a: 216ff), Detroit (Wolfram & Fasold 1974: 101-105, 129-134), Philadelphia (Guy 1980) and northern England (Chambers 1980).

Consonant cluster reduction was clearly well established in nineteenth-century BV, as Patterson's record bears witness. The examples he provides can be broken down by phonological environment into four main types:

(31)

(a) $$\begin{bmatrix}-\text{cont}\\+\text{vce}\end{bmatrix} \longrightarrow \emptyset \;/\; [+\text{nas}]\ \_\_\ (\text{ə}) \begin{bmatrix}+\text{son}\\-\text{nas}\end{bmatrix}$$

grumble	bundle	finger
thimble	handle	single
timber		

(b) $$\begin{bmatrix}-\text{cont}\\+\text{cor}\end{bmatrix} \longrightarrow \emptyset \;/\; \begin{bmatrix}-\text{cont}\\-\text{vce}\end{bmatrix}\ \_\_\ \#$$

swept	slept	act

(c) $$[-\text{cont}] \longrightarrow \emptyset \;/\; \begin{bmatrix}+\text{cont}\\-\text{vce}\end{bmatrix}\ \_\_\ \#$$

hoist	left	ask (beside aks)

(d) $$\begin{bmatrix}-\text{cont}\\+\text{cor}\\+\text{vce}\end{bmatrix} \longrightarrow \emptyset \;/\; [+\text{son}]\ \_\_\ \#$$

hand	wild	lard
end	child	

(26b) to (26d), all of which are reported in EModE (Dobson 1968: 960ff) are still very much in evidence in current BV. It will be noted that the word-final deletion of /d/ in (26d) is a generalisation of the process whereby final /g, b/ have been lost after nasals in standard dialects (sing, lamb). (26a) has been almost entirely lost from present-day BV, although a few relic forms remain. (England and mongrel are still frequently heard without medial /g/ even in corrected northern HE.) Reduction of medial nasal-plus-voiced-stop clusters penetrated only sporadically into SSE. Dobson cites examples from the seventeenth century (e.g. hunger, assembled, bundle) but in all cases the plosive has been restored in present-day SSE. However, the process remains widespread in modern British nonstandard dialects. Wright reports loss of the plosive in medial /mb/ and /ŋg/ (but less commonly /nd/) clusters throughout England (1905: 224-225, 232). This type of cluster reduction is almost completely regular in modern Scots including CUS (Wilson 1923: 17, 12;1926: 18; Gregg 1959: 419-420). Reduction of sonorant-plus-plosive clusters in final position is reportedly a general HE feature (Henry 1958: 151), but the regular reduction of similar clusters in medial position is restricted to CUS (Henry 1958: 151; Gregg 1972: 121). This suggests that (26a), which was current in nineteenth-century BV but has since been reversed, was predominantly Scots in origin.

3.8 Summary of changes in BV

By looking at both historical documentary evidence and present-day comparative evidence, I have attempted to reconstruct some of the main changes that have occurred in BV over the last 120 years or so. It has been possible to recognise two types of change, one phonetically abrupt but lexically gradual, the other proceeding by gradual shifts in phonetic space.

The major lexical transfers in BV have resulted in the decline or in some cases disappearance of nonstandard rural patterns of phoneme distribution. The main characteristics of nonstandard vowel phonology to be affected in this way are:

(32)

(a) /ʉ/ in place of 'standard' /əʉ/ in pouch, couch, etc.;
(b) /i/ in place of 'standard' /ɛ̈/ in brick, wick, etc.
(c) an /əi/ : /ɑe/ contrast in die : dye, eye : I, etc.;
(d) /a/ in place of 'standard' /ɑ/ before labials in top, rob, off, etc.;
(e) /ʉ/ in place of 'standard' /o/ before /r/ in board, whore, etc.;
(f) /a/ in place of 'standard' /ɛ/ before /r/ in learn, Derry, etc.;

(g) /ɛ̈/ in place of 'standard' /ɛ/ in <u>yes</u>, <u>get</u>, etc.;

(h) a mid vowel in place of 'standard' high /i/ in <u>meat</u>, <u>cheap</u>, etc.;

(i) /əʉ/ in place of 'standard' /o/ before /ld/ in <u>old</u>, <u>cold</u>, etc.;

(j) /ɛ/ in place of 'standard' /a/ in velar environments in <u>cat</u>, <u>pack</u>, <u>bag</u>, <u>bank</u>, etc.

The nonstandard distribution patterns in (25a-d) are exclusively Scots in origin; those in (25e) and (25f) exclusively English. The remaining nonstandard vowel-classes that have been subject to redistribution, (25g-j), evidently have a general EModE background that is common to both the Scots and English source dialects of northern HE. These alternating classes reflect either incipient EModE changes which were subsequently reversed in standard British dialects or older distribution patterns which have now been abandoned in most present-day dialects of English.

The main phonetically gradual changes which have affected BV vowels over the last century or so are:

(33)

(a) Raising of /ɛ/ (<u>bed</u>) from low to mid;

(b) backing and back-raising of /a/ (<u>bad</u>) in nonvelar environments;

(c) back-raising and rounding of /ɔ:/ (<u>dawn</u>), producing contextual merger with /ɑ/ (<u>don</u>);

(d) lowering of /ɛ̈/ (<u>bit</u>);

(e) unrounding of /ɔ̈/ (<u>but</u>).

Of these five changes, at least the first four clearly represent a move towards more Scots-type phonetic realisations. This is probably a reflection of the covert prestige that attaches to the speech of the 'labour aristocracy' which is concentrated in areas of Belfast with a predominantly US background.

The most important nonstandard characteristics of BV consonant phonology in the nineteenth century which I have attempted to reconstruct here can all be shown to have their origins in both standard and non-standard dialects of EModE. They can be summarised as follows:

(34)

(a) spirantisation of /d/ to /ð/ in the context V_/ər/ (e.g. ladder, fodder);

(b) stopping of /ð/ to /d/ in the contexts /r/_ or V_sonorant (e.g. farthing, fathom);

(c) realisation of standard /s/ as /ʃ/ in word-final position (e.g. fleece, grease);

(d) realisation of standard /ʃ/ as /s/ initially before /r/ (e.g. shriek, shrug);

(e) loss of voiced oral stops in medial clusters with nasals (e.g. thimble, candle, single).

(f) realisation of /t, d, n, l/ as dentals in the environment of following /r/ or /ər/ (e.g. tree, dry, butter, pillar, dinner);

(g) palatalisation of /k, g, ŋ/ in the environment of front or originally front vowels. Appearance of a palatal glide between a palatalised consonant and a nonhigh vowel (e.g. car, garden, girl, get);

(h) intervocalic tapping of /t/ (e.g. city, petal);

(i) deletion of /ð/ in the context V_/ər/ (e.g. mother, weather);

(j) reduction of word-final consonant clusters (e.g. kept, left, hand, child).

Since the mid-nineteenth century (34a) to (34e) have disappeared from BV; (34f) and (34g) are in decline; and (34h) to (34j) appear to be maintaining a vigorous existence.

The overall impression to be gained from the changes treated in this chapter is this. On the one hand, it is possible to discern in the lexical transfers a general move away from conservative, typically rural patterns of phonemic distribution towards a more standard pattern. On the other hand, the subphonemic, gradual shifts are not necessarily producing more standard allophony. Some, on the contrary, are actually moving away from standard norms (e.g. /a/ backing and /ɛ̈/ lowering), a clear sign that in some instances local covert prestige norms are winning out over exonormative pressures. The results of the historical reconstruction that I have attempted here suggest a couple of general principles which determine the way in which the tensions between overt and covert prestige are resolved in standard dialects. Firstly, one of the principal ways in which change from above proceeds is through the adaptive strategy of reorganising phonemic distribution in accordance with external prestige norms. Secondly, the primary route of change from below appears to be via phonetically gradual evolution in response to locally based norms that do not necessarily coincide with those of the standard. It is possible of course that internal evolutive change may eventually produce new nonstandard patterns of phonemic distribution which in their turn may become the target of adaptive change by lexical transfer.

Chapter 3. Appendix 1

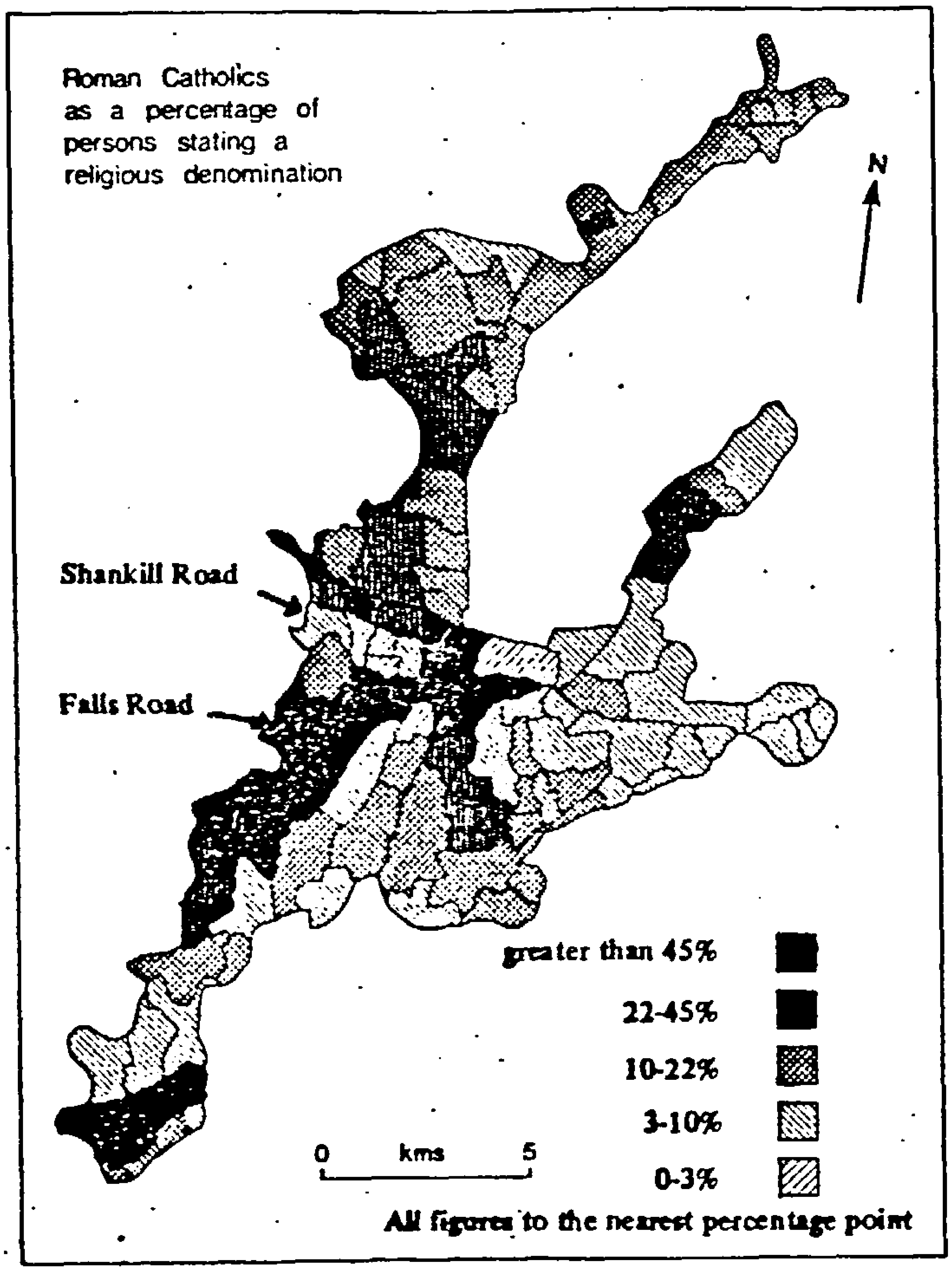


Fig 3-5. Distribution of Catholics in Belfast. Based on census figures for 1971 (from Compton 1978).

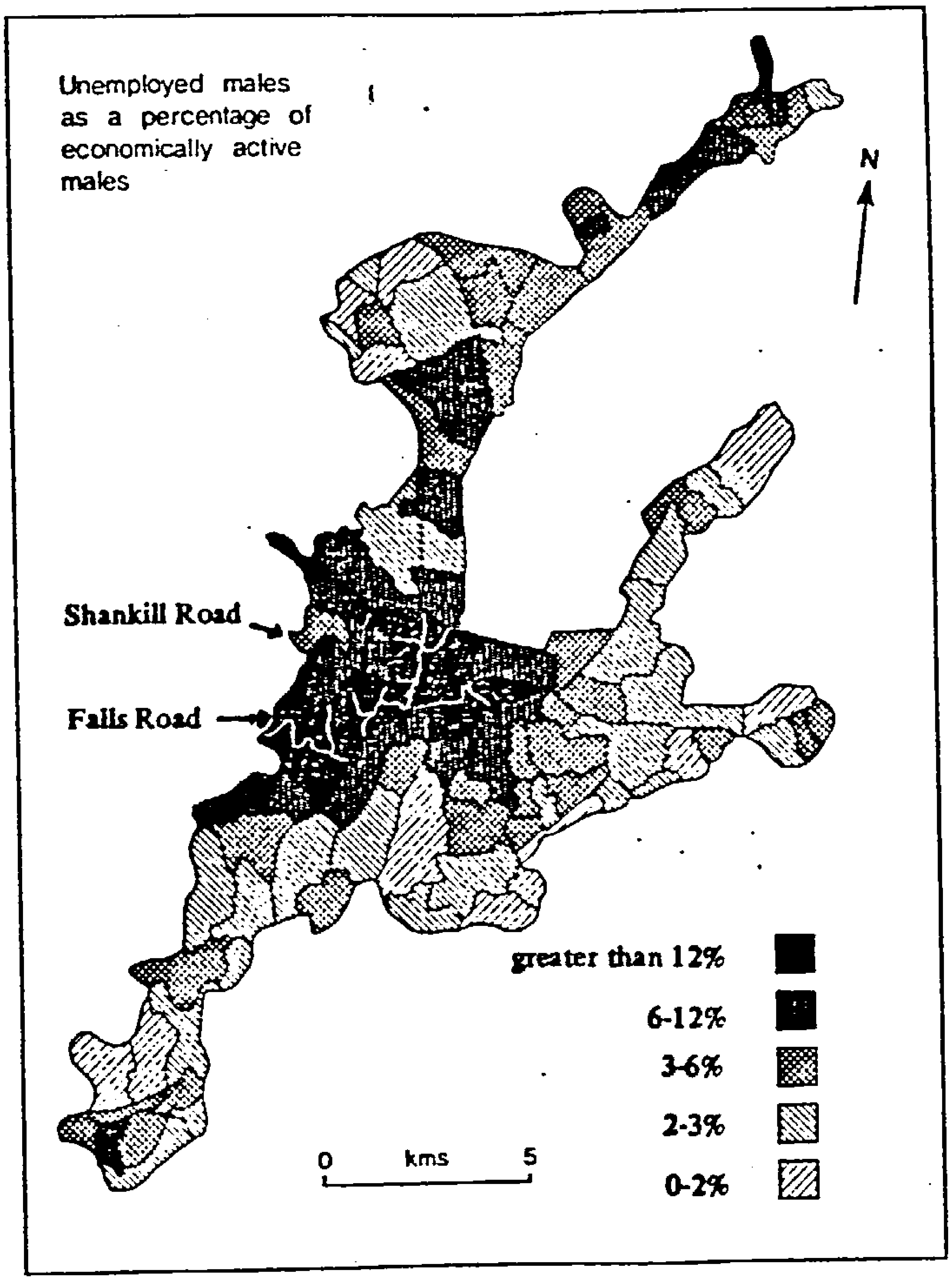


Fig 3-6. Distribution of male unemployment in Belfast (from Compton 1978).

(Note: this map is based on census figures for 1971. Since then unemployment in Northern Ireland has doubled to 21%, which has if anything accentuated the distribution pattern shown here. Source: British Government Departments of Employment and Industry, official statistics for February 1983.)

Chapter 3. Appendix 2

Tab 3-15. % distribution of BV /a/ (bat, bad) variants by following environment in three inner-city Belfast communities: Ballymacarrett, the Hammer and the Clonard. Area scores conflated.

	ɛ	æ	ä	ɑ	ɒ	ɔ	Tot	N
k	8	56	36	0	0	0	100	430
g	24	31	43	1	1	1	100	117
ŋ	6	37	57	0	0	0	100	234
ʃ	7	15	50	11	17	0	100	73
tʃ	10	10	55	25	0	0	100	70
p	2	11	34	47	6	0	100	174
t	1	7	71	20	1	0	100	495
b	0	0	37	57	5	1	100	99
d	0	5	27	65	3	0	100	333
f	0	1	17	72	10	0	100	89
θ	0	20	64	13	3	0	100	105
s	0	3	25	59	13	0	100	290
m	1	1	26	64	8	0	100	213
n	0	3	27	57	11	2	100	671
l	5	7	36	47	4	1	100	77
r	4	5	16	63	11	1	100	136
v	1	6	36	55	2	0	100	230
z	0	0	32	63	5	0	100	60
dʒ								8
ð		insufficient data						11
x								1

Footnotes to Chapter Three

1. See Benn 1923, Green 1952 and Jones 1952a for detailed histories of Belfast.

2. BV is similar to many other dialects in having two diphthongal reflexes of ME /i:/, one with an opener onset than the other. The opener variant generally appears at least in final open syllables, the closer one at least before voiceless consonants. This pattern of distribution is found in dialects spoken in Scotland, northern England and North America (for detailed discussions see Gregg 1973, 1975; Bailey 1973: 86ff; Chambers 1973; Aitken 1981; Lass 1981). For some speakers of present-day BV, a marginal contrast between [æ·ɩ] and [ɑ·e], which is in some ways similar to that illustrated in (1), is found in the minimal pair I vs aye. A similar pair [äɩ] I vs [ɑ̟·ɩ] eye apparently occurs in New York City (I owe this information to Roger Lass).

3. I don't think any significance from the viewpoint of historical reconstruction need be attached to the absence of Jesus from Patterson's vernacular MEAT set. Its omission was probably due to a desire not to offend religious sensibilities rather than a reflection of its absence from nineteenth-century BV. Vernacular [ˈdʒe:zəs] Jesus! is reserved for decidedly irreligious contexts.

4. There is no evidence in northern HE of anything equivalent to the so-called 'vowel 4a' of Scots (Abercrombie 1954) which crops up in some of the items that alternate between /ɛ/ and /ɛ̈/ in BV. Vowel 4a occurs especially before labials in Scots dialects which show a three-way contrast in river : never : sever. River contains the regular reflex of ESc short /i/, sever the reflex of ESc /e/ and never vowel 4a which varies in quality between [ə], [ɛ̈] and [ɛ]. Like the BV YES set, the 4a class in Scots is recessive.

5. Devil with /ɛ̈/ is now very much a rural stereotype in BV, being reserved for humorous and familiar settings. Bless with /ɛ̈/ is almost exclusively restricted to the speech of Catholics in Belfast, its survival possibly being due to the influence of the southern HE pronunciation of much of the Catholic clergy. [blɛ̈s] with BV /ɛ̈/ is more similar to southern HE [blɛs] than is [blɛ:ᵊs] with BV /ɛ/.

6. Scottish English (as opposed to broad Scots) is similar to standardised HE, conservative RP and most North American varieties in having two reflexes of ME/ESc /o:/ before historical /r/: /ʉ/ (equivalent to /u:/, /ɷə/, etc. in other dialects) in moor, poor; /o/ (equivalent to /o:/, /ɔ:/, /ɔə/, etc.) in door, floor.

7. Patterson criticises the pronunciation of gold as goold in

nineteenth-century BV. This pronunciation represents the regular raised development of ME /o:/ and was current in SSE well into the nineteenth century (Wyld 1920: 239), still surviving in the name Gould. It is still found in rural HE but has now been lost from BV. According to both Wyld and Ekwall (1975: 12), the modern RP nucleus in gold /əɷ/ stems from a derived form of the word which contained ME /o/. The latter vowel regularly merged with /ou/ before /ld/ (as in cold) and subsequently became levelled with the reflex of ME /ɔ:/ which has yielded current RP /əɷ/.

8. The reliability of orthographic evidence obviously depends to a large extent on the nature of the writing tradition. For instance, Old Saxon wrote the umlauted reflex of */ɑ/ as e but did not mark the parallel development of */u/: compare egiso < */agiso/ 'fear' and kuning 'king'. This example illustrates the need for historical linguists to exercise their ingenuity in combining orthographic evidence with the procedures of internal and comparative reconstruction. The conditions for umlaut are still transparent in the forms just given (the presence of /i/ in the following tautomorphemic syllable), so it is possible to reconstruct /y/ < /u/ in kuning by extrapolating from the orthographically marked umlaut in egiso.

9. Unless otherwise specified, the figures on which the tables and diagrams in this chapter are based are taken from the Social Science Research Council reports Language variety and speech community in Belfast (1977) and Sociolinguistic variation and linguistic change in Belfast (1983).

10. A few comments are in order on the possibility of problematic word-class assignments in (12). Any and many in nineteenth-century BV may have contained /a/, ultimately from /æ/ which these words had in OE. Modern standard /ɛ/ < ME /e/ in these forms is an oddity, possibly with an Anglian source. Many types of southern HE retain /a/ (or the equivalent) in both words. The items get, bless, red, also given in (12), alternated between /ɛ/ and /ɛ̈/ in nineteenth-century BV (see 3.5.6).

11. There is a marginal /a/ vs /a:/ contrast in BV which corresponds roughly to north of England /a/ (cat, chaff) vs /ɑ:/ (calm, half), except that in BV this is restricted to polysyllables (so that grammar does not rhyme with Palmer). As a result of the positional lengthening of /a/, the BV opposition is neutralised in monosyllables (see 1.4.2 for details).

12. Damsel with /ɛ/ in nineteenth-century BV may reflect a ME doublet with /e/ (cf. French demoiselle).

13. Berwickshire /ɑ/ or /ɒ/ < Esc /a/ reported by Wettstein and Zai came about through a chain-shift among historically short front vowels:

i
↓
e
↓
a ⟶ ɑ

The quality changes in the reflexes of ME /e, a/ in BV have produced results which are the opposite of what would be expected, were a chain-shift in operation:

'Long' environments	'Short' environments
↑	
ε	ε ↘
	↖
a ⟶	a

BV /a/ is backing in environments where /ε/ is raising. The contexts in which /ε/ is open are those in which /a/ tends to be front-raised.

14. Some of the items in (20) (especially *grass*, *thank*) may actually show a development of Old Norse /e/ rather than ESc /a/ < OE /æ/.

15. The item *apple* with /ε/ may indicate a Scandinavian source with /e/, cf. Icelandic *eppli*.

16. Of course in old-fashioned RP the /ε/ : /æ/ distinction is often carried by more than a simple height difference. /æ/ may typically be rather long and diphthongised, while /ε/ is short and monophthongal (Wells 1982: 280ff).

17. I see no reason to take Labov's chain-shift principles as universally binding. They are not even always valid for English, since it is possible to think of many examples of vowel changes which run counter to the directions predicted by his model. For instance, in contravention of the principle that 'tense' (i.e. long) vowels raise, ME short vowels lowered after undergoing open-syllable lengthening: [i] > [e:], [e] > [ε:], [u] > [o:], [o] > [ɔ:]. Labov's claim that any quality change in 'tensed' reflexes of ME /a/ necessarily entails raising is more in the nature of a parochial observation which appears to be valid for American English. Counterexamples in which the lengthened reflex of ME /a/ backs include (besides BV) some Scots (see Romaine, forthcoming) and of course the SSE BATH set with /ɑ:/.

18. *Thon* in northern HE is a deictic form expressing distance from *both* speaker and hearer. It contrasts with *that* which implies distance from speaker but proximity to hearer. See Todd 1975 and Harris 1982 for details.

19. In Tab 3-8 the mid round and low unround reflexes of historical short /o/ in BV and US are expressed as O and A respectively

rather than in IPA notation. This is to avoid the difficulty of representing the equivalence between what is a phonemic contrast in one dialect and a purely allophonic difference in the other (i.e. CUS /ɔː/ vs /ɑː/; BV [ɔː] vs [ɑ]).

20. The collapse of the /kj/ : /tʃ/ distinction apparently also occurs in some Scots (Roger Lass, personal communication).

21. According to Roger Lass (personal communication), dental realisations of /t, d, n, l/ in all phonetic contexts are characteristic of Aberdeen and west coast Scottish varieties, although there is a possibility of Gaelic influence here too. Dental articulations of /l/ are apparently widespread in the United States.

22. There is a possibility that medial [ð] in <u>ladder</u>, <u>bladder</u>, <u>fodder</u>, etc. is original (from an alternative Scandinavian source?) rather than a development of OE /d/.

23. Compare the deletion of medial apicals in BV [ˈmɔ̈ːəʴ] <u>mother</u>, [ˈbɹɔ̈ːəʴ] brother, etc. with similar deletions in cognate forms in other Germanic languages, e.g. Swedish <u>mor</u>, <u>far</u>; Dutch <u>broer</u>.

24. Initial /sr/ clusters are also apparently a feature of some southern United States dialects (Roger Lass, personal communication).

Chapter Four

ON AVOIDING MERGER: WHAT'S BEEN HAPPENING TO M.E. /ɛ:/?

What happened to ME /ɛ:/ (the MEAT class)? This is a question that has engaged the attention of English historical phonologists over the years. The class was more or less intact as it entered the Early Modern period but by the eighteenth century was merged in SSE with ME /e:/ (the MEET class). Phonologists are divided over what befell the vowel between these two stages. Was it ever merged with ME /a:/ (the MATE class), as some of the documentary evidence seems to suggest? How did the present-day merger of the MEAT and MEET classes come about - through internal evolutive change or through dialect borrowing? Since the issue is now generally considered dead, contributions to the debate have usually been restricted to the interpretation of historical records, the invocation of general principles of phonological change, or the drawing of inferences from parallel but etymologically unrelated mergers that are in progress today. Not much use has been made of the directly observable comparative evidence that is available in the form of present-day non-standard dialects of English where the MEAT : MEET issue is still very much a live one.

In this chapter I present material from a number of dialects, including BV, in which a three-way contrast in the MEET : MEAT : MATE series is preserved and attempt to reconstruct the development of these vowels in each of the dialects in question. The reconstruction not only demonstrates the different paths followed by ME /ɛ:/ in the history of English generally but also contributes to our understanding of what happened to the vowel in SSE. The various strategies adopted to prevent the collapse of distinctions in the MEET : MEAT : MATE subsystem are not just one-off responses to a specific problem but are representative of more general opposition-maintaining procedures that can be implemented while large-scale change (such as the Great Vowel Shift) is in progress. Not all of these strategies can be readily accommodated in conventional models of chain-shifting.

4.1 Introduction

One problem that has bothered English historical phonologists over the years is the question of what happened to ME /ɛ:/ (the MEAT class). Two things about the recent history of this vowel-class in SSE are beyond dispute. First, it was more or less intact when it entered the Early Modern period, and second, with a few lexical exceptions, it has subsequently been absorbed into the MEET class (ME /e:/). Controversy arises over what happened to ME /ɛ:/ between these two stages. According to some interpretations of the historical evidence, the vowel was merged for a while with ME /a:/ (the MATE class) before separating again and undergoing merger with ME /e:/. This has been widely rejected on the grounds that phonological mergers are in principle irreversible. Most of the evidence adduced in the dispute has been of an indirect type, since the issue is now considered to be 'a dead one' (Labov 1975: 829). This is certainly true as far as SSE and related dialects are concerned. Thus historians of the English language have conducted the argument by seeking to interpret historical records, or by invoking general principles of phonological change, or by drawing inferences from parallel but etymologically unrelated mergers that are in progress today.

In fact it is a little premature to be performing autopsies on the MEAT : MEET issue. In some present-day nonstandard dialects the distinction between these two vowels is still very much alive. I have already pointed out that mid reflexes of ME /ɛ:/ survive in all conservative varieties of HE (112, 3.54). According to the records of the Survey of English Dialects, the distinction is also to be found in many rural dialects in England (Orton et al 1962-1969). It is also reportedly preserved in some Scots dialects (Catford 1957). This dialect material provides valuable comparative evidence which throws light on the history of ME /ɛ:/ not just in SSE but in English generally. Among the major authorities on the history of English, only Luick (1921) has seriously sought to bring this kind of evidence to bear on the problem in any systematic way. However, at the time of his writing he did not have available to him the wealth of material that is now at our disposal thanks to recent systematic dialectological research.

On the basis of a survey of ME /ɛ:/ reflexes in a number of present-day nonstandard dialects, it is possible to do a comparative reconstruction of at least some of the paths followed by the vowel in different dialects since Early Modern times. The exercise is rewarding not just for the light it sheds on the history of this particular vowel but also for the insights it offers into the types of 'strategies' that may be implemented to avoid mergers taking place while large-scale change is in progress (in this case the Great Vowel Shift).

A characteristic of many major sound-shifts which operate globally on phonological subsystems is that, despite the often phonetically radical changes involved, they proceed without disturbing the number of systemic oppositions. In Germanic, we can think of Grimm's Law and the High German Consonant Shift as examples. The English Great Vowel Shift is also generally considered to be of this type. These changes are widely viewed as collections of chronologically disparate but functionally related events whose shape is determined by some higher-order condition which ensures that the system of phonological contrasts is preserved. This view is implicit in Jespersen's (1909) account of the Great Vowel Shift and is explicitly expressed in Luick 1921, Martinet 1955 (ch 10) and Lass 1976 (ch 2). The merger of ME /e:/ and /ɛ:/ is one of the few cases in SSE where this 'no-collapse condition' (Lass 1976: 71) failed, although it must be said that this collapse did not occur until very late in the Great Vowel Shift.[1] In the nonstandard dialects I discuss here, we witness the results of the no-collapse constraint having remained in force while the vowels in question were in the process of merging in other dialects. It is instructive to examine the diverse ways in which the constraint has been implemented in these instances. As far as the history of the Great Vowel Shift in SSE is concerned, most accounts have focused on the putative covariation between the diphthongisation of ME /i:/ and /u:/ (the BITE and BOUT classes) and the raising of historically nonhigh monophthongs. The comparative evidence presented here indicates that this is only one of several patterns that have occurred simultaneously in different dialects of English.

One of the most obvious developments that diverge from the standard pattern occurred in the subsystem of historically long back vowels. In northern dialects, ME /o:/ became fronted (and subsequently unrounded and/or raised in many instances) before the beginning of the Great Vowel Shift, and ME /u:/ failed to diphthongise: compare say southern Scots /hus/ house, /dë/ do (Wettstein 1942: 42-43) with RP /haʊs/, /du:/. Divergences among dialects of English are less extreme when it comes to the development of historically long front vowels. This is in part due to the fact that ME /i:/ has been diphthongised everywhere (apart from sporadic lexical exceptions). However, the manner in which historically nonhigh front long vowels have been affected by the general raising tendency of the Great Vowel Shift does show a certain amount of regional variation. Besides the chain-shifting of monophthongs found in early SSE and related varieties, other patterns observed in nonstandard dialects include:

(a) early diphthongisation of other historical monophthongs besides ME /i:/ (earlier than the post-seventeenth-century changes /e:/ > /eɪ/, /o:/ > /əʊ/ in SSE);

(b) the 'leapfrogging' of ME /a:/ past ME /ɛ:/; and

(c) the development of new length contrasts.

The effect of these changes (occurring singly or in combination) on the dialects I examine below has been to preserve a three-way MEET : MEAT : MATE contrast.

Before I proceed to a survey of the dialect material on ME /ɛ:/, it seems a good idea to set the scene by recalling the main arguments over the history of this vowel in SSE.

4.2 The history of ME /ɛ:/ in Southern Standard English

The divergence of opinion over exactly what happened to ME /ɛ:/ in SSE rests on different answers to two crucial questions:

(1)

(a) Did MEAT and MATE merge?

(b) Is the present MEAT : MEET merger the outcome of gradual phonetic change or of lexical transfer through dialect borrowing?

The answer to (1a) hinges on the arrangement into three different sub-systems of the historically nonhigh front long monophthongs, here represented by MEET (ME /e:/), MEAT (ME /ɛ:/) and MATE (ME /a:/):

(2)

A	B	C
MEET	MEET	$\left\{\begin{matrix}\text{MEET}\\\text{MEAT}\end{matrix}\right\}$
MEAT	$\left\{\begin{matrix}\text{MEAT}\\\text{MATE}\end{matrix}\right\}$	
MATE		MATE

All authorities are agreed that EModE had system (2A), in which ME /e:, ɛ:, a:/ were all distinct, and that SSE emerged into the eighteenth century with system (2C), in which ME /e:/ and /ɛ:/ were merged (under modern /i:/). Controversy arises over just how the transition from (2A) to (2C) took place. Scholars have broadly speaking divided into two camps on this issue, some holding that the transition occurred via system (2B), in which ME /ɛ:/ and /a:/ were merged, others contending that no such intervening stage can be contemplated. The main arguments for each of these positions can be summarised as follows.

Merger of MEAT and MATE. The MEAT class merged with MATE (subsystem (2B)), only to separate again and subsequently merge with MEET (2C). The disengagement of the MEAT and MATE classes was achieved not by gradual sound change, since mergers have traditionally been regarded as irreversible. What happened rather was that a high-vowel pronunciation of MEAT items was borrowed from dialects in which ME /ɛ:/ and /e:/ had already been merged. The dialects in question are generally assumed to have been nonstandard London English and its immediate hinterland varieties.

Wyld was the first to formulate this hypothesis, dating the merger of MEAT and MATE under [e:] to the end of the fifteenth century (1920: 195). The merger of MEAT and MEET under [i:] in nonstandard regional and/or class dialects he dates to just before this time (209). The [i:] and [e:] pronunciations of MEAT existed side by side in London during the sixteenth and seventeenth centuries, [i:] at first being associated with nonstandard usage but gradually replacing [e:] in standard speech. The latter variant, according to Wyld, became obsolete in SSE around 1700.

Both Kökeritz and Dobson agree with the general outline of Wyld's account but prefer to date the MEET : MEAT merger in nonstandard dialects to the late ME period, so that the MEAT vowel could participate in the raising of ME /e:/ to /i:/ (Kökeritz 1953: 194ff; Dobson 1968: 606ff). Dobson argues that this change took place during the thirteenth and early fourteenth centuries and claims that dialects affected in this way were already contributing ME /e:/ variants of MEAT words to London English by this time.

No merger of MEAT and MATE. Ahead of advancing ME /a:/, ME /ɛ:/ raised towards and eventually merged with ME /e:/ under a high vowel. This alternative and older version of events, found for example in Jespersen 1909, Zachrisson 1913, Ekwall 1975 and Luick 1921, excludes the possibility that subsystem (2B) was ever an intermediate stage between (2A) and (2C). Again there is some dispute over the dates involved. Jespersen (1909: 242ff), Ekwall (1975: 30) and Luick (1921: 597) are in general agreement that [e:] < ME /ɛ:/ had raised and merged with ME /e:/ under [i:] by the early eighteenth century, [ɛ:] < ME /a:/ meanwhile moving into the vacated [e:] position and later diphthongising to [ei]. (Jespersen prefers to reconstruct diphthongisation at the half-open stage, i.e. [ɛi].) Zachrisson dates the raising of ME /ɛ:/ to [i:] as early as the mid-sixteenth century but concludes that this pronunciation was not generally accepted into SSE until the end of the following century when some speakers, trying to maintain the older mid pronunciation of ME /ɛ:/, merged it with ME /a:/ (1913: 204).

In a more recent investigation of the MEAT : MATE problem, Labov et al have come up with a solution that combines elements of both of the positions just outlined (Labov, Yaeger & Steiner 1972; Labov & Nunberg 1972; Labov 1975). In common with Wyld, Kökeritz and Dobson, Labov holds that [i:] pronunciations of ME /ɛ:/ words were borrowed into SSE from nonstandard dialects. However, he agrees with the alternative account in arguing that there was no MEAT : MATE merger, i.e. he rejects system (2B) as an intermediate stage between (2A) and (2C). Labov begins his discussion of the problem by accepting Wyld's interpretation of the evidence of rhymes, puns and occasional spellings:

> There is no question that a merger of $\bar{\bar{e}}\bar{a}$ [ME /ɛ:/: JH] and long $\bar{a}$ [ME /a:/] was reported in the sixteenth century, and that many speakers heard meat and mate as the same (1975: 848).

He also concurs with Wyld in regarding [e:] and [i:] as variant pronunciations of MEAT words in the sixteenth century, whose occurrence was constrained by the sociolinguistic factor of class.

However, Labov points to a major weakness in Wyld's position which has to do with the presumed irreversibility of phonological mergers. Wyld, Kökeritz and Dobson all invoke this principle in rejecting the possibility that ME /ɛ:/, having merged with ME /a:/, could have split off again as a result of gradual sound change. But, as Labov points out, their theory that [i:] pronunciations of MEAT items were borrowed into SSE from nonstandard dialects still presupposes the reversal of the MEAT : MATE merger. The undoing of a merger by borrowing still requires that speakers 'relearn word classes which are essentially massive sets of historical accidents' (1975: 835). That speakers have difficulty doing this is evident from parallel situations that can be directly observed in the present day. Two well-known cases in British English will illustrate the point. North of England speakers trying to acquire a more standard southern-type pronunciation are faced with the problem that their single /ʊ/ phoneme corresponds to a two-way /ʊ/ : /ʌ:/ contrast in RP. Speakers thus have to learn two distinct lexical sets which in their native dialect constitute only one set. This is not always wholly successful, as frequent misassignments of items to lexical sets bear witness (e.g. /gʌd lʊk/ good luck). Similar hypercorrections are heard from Scottish speakers trying to acquire the RP two-way /u:/ : /ʊ/ contrast which corresponds to a single phoneme (generally /ʉ/) in Scottish English (so that pool = pull). If it is indeed true that ME /ɛ:/ and /a:/ were at one time merged in SSE, we might expect to find documentary evidence of similar hypercorrections resulting from an imperfect learning of the MEAT and MATE classes as they subsequently became separated. In this case hypercorrection would take the form of MATE items being inappropriately assigned to the MEET class. There is no evidence to suggest that this happened (although of course argumentum ex silencio is the weakest strategy for the historian). We might also expect a residue of MEAT items to remain behind in the MATE class for the same reason. This is indeed the case: great, break, steak, drain and yea, which originally contained ME /ɛ:/, now have the regular reflex of ME /a:/. However, the retention of a mid vowel in even this small residue of words can plausibly be ascribed to fine phonetic conditioning or analogy (see Labov & Nunberg 1972).[2]

Labov concludes that reports of a MEAT : MATE merger in sixteenth-century SSE were inaccurate and argues on the basis of recent studies of linguistic change in progress that the reflexes of ME /ɛ:/ and /a:/ were at that time phonetically so similar that they were mistakenly regarded as being identical. Examples of falsely reported mergers in present-day dialects of English are cited as evidence of how this might have happened: e.g. SAUCE/SOURCE in New York City (Labov 1966); FOOL/FULL in Albuquerque, New Mexico; HOCK/HAWK in central Pennsylvania; LINE/LOIN in Essex (Labov, Yaeger & Steiner 1972: ch 6); and TOO/TOE in Norwich (Trudgill 1974). Instrumental measurements showed in these cases that what was reported as a merger was in fact a close approximation in phonetic space, one vowel being slightly more peripheral than the other. Labov concludes that the vowels of MEAT and MATE in sixteenth-century SSE were distinguished by a similarly small phonetic margin. So small in fact that it could not be relied on consistently to maintain a perceptual distinction between the two sounds. The subsequent history of ME /ɛ:/, Labov claims, shows how this difference in production was sufficient to preserve MEAT as a relatively intact class until its later wholesale transfer into the MEET class. Given that Labov bases his argument on the evidence of etymologically unrelated word-classes, it is not clear what form the close phonetic approximation between the MEAT and MATE vowels might have taken. Labov himself seems to imply some sort of peripherality contrast similar to those seen to be operating in the falsely reported mergers he studied. On this question the comparative material from present-day nonstandard dialects is quite illuminating, since it illustrates several ways in which the close approximation between MEAT and MATE in sixteenth-century SSE might have come about. Only one of these involves a contrast in peripherality.

What is surprising is that Labov should even accept Wyld's interpretation of the documentary evidence in the first place. Wyld's case rests almost entirely on the evidence of rhymes and occasional spellings, which is generally considered not to be as reliable as that of the orthoepists. After careful sifting of the orthoepistical evidence, Wolfe (1972) challenges Wyld's claim that a merger of MEAT and MATE was ever reported. In the major orthoepists' works written during the period of the alleged merger from Hart 1569 to Webster 1789, Wolfe finds no convincing evidence of a MEAT : MATE merger (1972: 106). (Only Tuite (1726) mentions the possibility of MEAT being pronounced with the vowel of MATE but only then as a less usual variant than that of MEET.)

Wolfe is therefore in agreement with Jespersen, Zachrisson, Ekwall and Luick at least on how the first of the questions posed in (1) should be answered: there was no merger of MEAT and MATE in SSE. Labov's claim that the two vowels were in close phonetic approximation would plausibly account for the fact that there was occasional confusion over their orthographic representation and that they were sometimes used to form (imperfect) rhymes. But the careful orthoepists of the sixteenth and seventeenth centuries were agreed that the vowels were distinct. Wolfe, however, parts company with Jespersen and the others over the second of the questions raised in (1). Where the latter see ME /ɛ:/ raising gradually to [i:], Wolfe views the change from mid to high position as being discrete. This view is not based on Wyld's dialect borrowing hypothesis (although she does accept this) but flows from her conception of phonological change as proceeding by (necessarily discrete) rule change, specifically in this case by the addition of a raising rule. The applicability of the rule addition model to the MEAT : MEET merger in SSE is questionable (see 4.5). However, the recent work of Wolfe and Labov et al does strongly support Wyld's (and therefore Kökeritz's and Dobson's) contention that the merger came about through the discrete transfer of MEAT items into the MEET class, rather than by the gradual raising of the MEAT vowel. The indications are that the change proceeded in a lexically gradual fashion via a period of sociolinguistically constrained alternation. Documentary evidence shows that during the sixteenth and seventeenth centuries items in the MEAT class alternated between a mid and a high vowel, with the latter gradually replacing the former in the vast majority of words. As we have seen (3.5), this pattern of lexically gradual transfer has been observed in the present day to be one of the most common mechanisms of adaptive change. In fact in BV we have a directly observable example of the MEAT : MEET merger being implemented in this way.

4.3 The MEAT class in Belfast Vernacular

In this section I give a more detailed account of the MEAT class in BV than was provided in 3.5.4. As already pointed out, the vowel in MEAT alternates in BV between a nonstandard mid variant and a standard high variant which appears categorically in the MEET class. I have shown how this variation is indicative of a lexically gradual change whereby MEAT items are in the process of being categorically transferred into the MEET class. That this is the case is borne out by the fact that, of the 100-odd items listed by Patterson as containing the mid vowel in nineteenth-century Belfast, only around 35 still retain this pronunciation (and even then only variably). When BV speakers' attention is drawn to the nonstandard variant, they generally agree that it is identical to the vowel in the MATE class. This is the view that writers have taken of the vowel in HE generally (Adams 1956: 94-95; Bertz 1975: 122; Braidwood 1964: 58-60; Gregg 1959: 413; Henry 1957: 30, 77; Lunny 1981a: 44). Local dialect puns, rhymes and spellings provide further evidence that the mid variant of MEAT is held to be merged with the vowel in MATE.[3] The following lines of a song written by Bernard Keenan in 1966 provide an example:

> The Roost is next and for a rest
> you can take a seat
> Before proceeding further to the
> good oul' Golden Gate
> (Hammond 1978: 48).

In fact examples of MEAT : MATE rhymes in northern HE dialect verse go back at least as far as the eighteenth century (see Connolly 1981). On the basis of spelling evidence from the seventeenth and eighteenth centuries, Bliss concludes that MEAT and MATE were merged in HE by 1700 (1979: 208-210). Writing in 1781, Sheridan has this to say about HE-speakers:

> Thus in the combination ea, they pronounce the words tea, sea, please, as if they were spelt tay, say, plays; instead of tee, see, pleese (142).

Similar reports of a MEAT : MATE merger in HE appear in Jespersen 1909 (337) and Wright 1905 (39, 114).

Thus BV speakers are generally considered to have access to two of the subsystems given in (2): a vernacular one in which MEAT and MATE are merged (2B) and a standard one in which MEAT is merged with MEET (2c). However, in a detailed investigation of the MEAT class in Belfast, Milroy & Harris (1980) report that the vowel in MEAT is frequently lower than that in MATE and often lacks the centring off-glide that is characteristic of the latter in closed syllables. Thus a typical contrast between the two vowels might be something like [tẹ:m] <u>team</u> ('gang') vs [tɩəm] <u>tame</u>. In other words, there is a possibility that BV speakers, in addition to the standard system (2C), might have access not to (2B) but to (2C) in which the historical three-way opposition among MEET : MEAT : MATE is preserved. In order to test whether or not this was the case, we employed a combination of methods including impressionistic transcription and quantitative analysis.

The first problem encountered stemmed from the fact that nonstandard mid alternants of the MEAT class tend to be deeply submerged in the vernacular, being restricted to extremely informal and intimate settings. In formal circumstances, such as during the reading of word-lists, vernacular speakers almost invariably used the standard /i/ variant and could not be persuaded in a natural way to produce the nonstandard mid variant. Whenever the researchers tried to elicit MEAT items pronounced in 'broad Belfast' together with examples from the MATE class, speakers quite clearly interpreted the classes as having merged. We treated this interpretation with some scepticism, especially since other pairs of vowel-classes which were clearly distinguished by most speakers in spontaneous speech were also reported in formal tests (such as the reading of minimal pairs) as being 'the same' (e.g. FAIR : FUR; FOR : FOUR). In order to avoid potential inaccuracies in responses elicited in formal settings, we decided to analyse tape-recordings of spontaneous speech in informal contexts. Of the 50-odd speakers interviewed for the survey of inner-city BV, we concentrated on eight who made the most frequent use of vernacular MEAT alternants. In the light of what was said in Chapter 3 about the linguistic conservatism of males in Belfast, it should come as no surprise to learn that the eight speakers in question were all men. An initial attempt was made to get spectrographic measurements of the vowels in a sample of MATE and vernacular MEAT tokens collected from these speakers. Unfortunately the spectrograms were not of sufficiently good quality to permit firm conclusions to be drawn from them on the question of a possible MEAT : MATE distinction. The low quality reflected the fact that the recordings had deliberately been made in maximally informal circumstances with the minimum of obtrusive recording equipment. One of the eight speakers was then invited to the recording studio so that high-quality recordings could be made for the purposes of accurate spectrographic analysis. This was not a success: the formality of the situation once again ensured that vernacular alternants of the MEAT class did not occur.

It was decided to concentrate on impressionistic transcriptions of a sample of MATE and vernacular MEAT tokens which would be sufficiently large to reveal general patterns of distribution. Two phonetic dimensions appeared to be important in the realisation of the MEAT and MATE vowels: height and the presence vs absence of a centring off-glide. Initially four variants defined by height alone were recognised: (1) a higher than half-close nucleus with a schwa off-glide; (2) a half-close nucleus with or without an off-glide; (3) a nucleus between half-close and half-open with or without an off-glide; and (4) a half-open monophthong. No examples of half-open diphthongal realisations were encountered. Variant (1) always appeared with an off-glide: monophthongal close front vowels were immediately recognisable as realisations of /i/, the MEET vowel (particularly since the latter is subject to Aitken's Law and mid front vowels are not - see 1.4.1). In all, 60 MEAT tokens containing the vernacular vowel and 99 MATE tokens were transcribed in this way. The distribution of the two classes by vowel height (scores for individual speakers and phonetic environments conflated) is given in Tab 4-1.

The figures in Tab 4-1 clearly indicate that the distribution of variants is different for the two vowel-classes. The MEAT vowel does not appear at height 1, whereas the MATE vowel does so roughly one third of the time. The MATE vowel does not occur at height 4, while the MEAT

Tab 4-1. Distribution of MEAT and MATE tokens by vowel height in BV (all speakers and phonetic environments conflated).

Word-class		MEAT	MATE
Variant			
1	[ɩə]	0	33
2	[e, eə]	20	60
3	[ȩ, ȩə]	38	6
4	[ɛ]	2	0
Total		60	99

vowel does so occasionally. The most frequent variant for the MEAT class is 3; for the MATE class it is most often 2, occurring at that height roughly two-thirds of the time. Thus the vernacular variant of the MEAT class typically appears with a lower realisation than the MATE vowel. A chi-square test established that the distributional differences in Tab 4-1 are highly significant ($p. < .01$). In other words, the chances of the differential being purely accidental are less than one in a hundred. Therefore we can state with a high degree of confidence that the MEAT and MATE classes are not fully merged for these BV speakers.

Nevertheless, it is true that there is a probability of overlap between the two vowel-classes, particularly at height 2. This depends partly on whether they are distinguished by some phonetic parameter other than vowel height, e.g. the presence vs absence of a centring off-glide. Tab 4-2 shows the incidence of the glide at each of the four heights.

Tab 4-2. Distribution of centring off-glide by vowel height in MATE and vernacular MEAT tokens in BV (all speakers and phonetic environments).

Word-class	MEAT		MATE	
	Glide	No glide	Glide	No glide
Height				
1	0	0	33	0
2	18	2	54	6
3	18	20	4	2
4	0	2	0	0
Total	36	24	91	8

The frequency with which the centring glide occurs appears to be identical for both classes at height 2. Provided there is no other parameter of phonetic variation that has not been taken into account, it can be said that the two classes are not distinguished by the presence or absence of a glide at this height and that true overlap occurs in this case. For the two classes as a whole, however, the frequency with which the glide appears is significantly different (p. < .01), as the figures in Tab 4-3 show. However, a comparison of the figures in Tab 4-2 and Tab 4-3 reveals that the incidence of the glide is more likely to correlate with vowel height than to correlate with word-class membership. That is,

Tab 4-3. Distribution of centring off-glide across the MATE and vernacular MEAT classes in BV (all speakers, phonetic environments and vowel heights).

Word-class	MEAT	MATE
Glide	36	91
No glide	24	8
Total	60	99

the incidence of the glide in the MATE class is higher because the incidence of closer vowels in that class is also higher.

It is possible to conclude that in the majority of cases, the vowels in MATE words and those in vernacular MEAT alternants are distinguished in basic BV by vowel height and by the presence vs absence of a centring off-glide. Reports that the two classes have merged totally in this dialect are therefore inaccurate. It is nevertheless true that, at height 2, they are probably often identical. In other words, they overlap to a certain extent. The MEAT : MATE distinction in BV is thus similar to the cases of falsely reported merger discussed by Labov and his co-workers. There is one important difference, however, between their findings and the ones presented here. Labov et al conclude that their examples of falsely reported merger stem from perceptual overlap (1972: ch 6). That is, although a distinction is consistently maintained in production, it is not signalled by a sufficiently large phonetic margin for hearers to be able to perceive it consistently. In the BV MEAT : MATE example, on the other hand, it is overlap in production which appears to be primarily responsible for false reports of merger. This raises some thorny questions concerning the modelling of perception and production in phonology which I return to in the next chapter. For the time being I wish only to extract a few points from the material presented in this section that seem to have a bearing on the history of ME /ɛ:/.

Firstly, it follows from the findings on the MATE and vernacular MEAT classes in Belfast that, in some cases at least, reported mergers of the two classes in HE may not be mergers at all. It seems unlikely that BV should preserve a marginal distinction between ME /ɛ:/ and /a:/ without this being due to contributions from at least some of Belfast's hinterland dialects. The ultimate source of these contributions presumably lies in the seventeenth-century regional British dialects which most influenced the early growth of northern HE. As I hope to show in 4.4 and 4.6, there is strong comparative evidence to support this.

Secondly, the state of the MEAT class in present-day BV closely resembles that hypothesised by Labov for sixteenth-century SSE. Of course it would be dangerous to assume too much in the way of similarities between the two situations. For one thing, the exact phonetic realisations of at least one of the vowels in question are probably quite different in the two dialects: there is no suggestion, for instance, that ME /a:/ ever reached the closer than half-close stage of BV [ɩə] (although see 4.7 on the possibility of close parallels in the centring off-glide). However, the following parallels can plausibly be drawn. The alternation between a conservative mid and an innovating high vowel in the MEAT class, which is a feature of present-day BV, in all likelihood also occurred in sixteenth- and seventeenth-century SSE. This pattern of variation apparently reflects a lexically gradual change in both dialects whereby MEAT items are progressively transferred into the MEET class. The close phonetic approximation that is characteristic of MATE and conservative MEAT alternants in BV may also, as Labov suggests, have been a feature of sixteenth-century SSE. This would account for the reported confusion between the two classes in both dialects. If we assume the absence of merger between the two classes in both BV and early SSE, despite some reports to the contrary, this avoids the difficulty that is inherent in the merger hypothesis of having to explain their subsequent, remarkably unmessy separation.

Thirdly, a puzzling aspect of the approximation between the MATE and vernacular MEAT vowels has to do with the relative heights of the two vowels in present-day BV. In the covarying chain of events that make up the Great Vowel Shift, long nonhigh monophthongs raise but maintain their positions relative to one another (while the highest vowels 'drop out' of the monophthongal system through diphthongisation): /aː/ > /ɛː/ > /eː/ > /iː/; /ɔː/ > /oː/ > /uː/. What is perplexing about the BV MEAT : MATE case is that ME /aː/ has apparently 'leap-frogged' past ME /ɛː/, so that the former now crops up with a higher reflex (typically [ɪ̞ə]) than the latter (typically [ȩ] or [ȩə]). This is not an isolated example. Labov suggests that the same thing has happened to the vowels in BIT and BET in Glasgow and HOARD and HARD in southwest Utah (Labov, Yaeger & Steiner 1972: 267). Labov seeks to explain cases such as these in terms of the addition of 'abstract' flip-flop rules whose phonetic effect is to rotate one vowel past the other. I take this up in 4.5, but for now I simply note that similar cases of leapfrogging between the MEAT and MATE vowels are to be found in some nonstandard dialects of British English, including several of those I look at in the next section. Comparative reconstruction of the changes that have produced the current reflexes of ME /ɛː/ and /aː/ in these dialects sheds light not only on how leapfrogging may have occurred in the source dialects of BV but also more generally suggests certain strategies of merger-avoidance that do not easily fit conventional models of chain-shifting.

4.4 The MEAT class in nonstandard British dialects

HE is not the only variety of English in which the fate of ME /ɛː/ is not yet sealed. There are several dialect areas in Scotland and England where the MEAT : MEET merger has either not taken place or not been completed. The development of ME /ɛː/ in these dialects is of direct relevance to the history of the vowel in BV, since many of them are descendants of the original source dialects of northern HE.

It is convenient for my present purposes to classify dialects of English according to the three subsystems given in (2), i.e. according to the different distribution patterns of the reflexes of ME /a:, ɛ:, e:/. The three dialect-types defined in this way can be referred to by using the letters A, B, C given in (2) as follows:

(3)

Dialect-type

A : ME /a:, ɛ:, e:/ all distinct

B : ME /ɛ:/ and /a:/ merged

C : ME /ɛ:/ and /e:/ merged

According to the records of the Survey of English Dialects and Catford (1957), all three subsystems are still to be found in England and Scotland. Type-C dialects are by far the most familiar today, including all standard varieties, most British urban vernaculars, and the overwhelming majority of nonstandard varieties spoken outside Britain and Ireland. In type-A and B dialects the influence of the type-C standard is reflected in the fact that MEAT items tend to alternate between a progressive variant identical to the MEET vowel and an internally-evolved conservative variant distinct from MEET (as in BV). In what follows, I work with an oversimplifying assumption that there is such a thing as a 'basic' type-A or type-B dialect in which MEAT consistently retains the conservative alternant.

The most important type-B dialects (MEAT = MATE) in England, according to the records of the Survey of English Dialects, are to be found in an area stretching south from Cheshire, through the West Country and as far as the Hampshire coast (see Orton, Sanderson & Widdowson 1978: maps Ph 60-91). Examples of type-B dialects in Scotland provided by Catford are Bute, Lanarkshire, Berwickshire and north Kirkcudbright (1957: 113). In almost all type-B dialects, whether Scots or English, ESc/ME /a:/ and /ɛ:/ are merged under a mid front monophthong (phonemically long in England and, because of Aitken's Law, positionally long or short in Scotland). Detailed descriptions of some Scots dialects indicate that it is probably necessary to recognise a mixed B/C type where there is evidence of the MEAT class having split, some items joining the MEET class, others being absorbed into the MATE class. This is apparently the situation in certain dialects in the northeast of Scotland (Mutschmann 1909: 40-41), the central Lowlands and the southwest (Wilson 1923: 27; 1926: 29), and the Borders (Wettstein 1942: 41; Zai 1942: 76). It is not clear whether this split is due to internal changes, as Aitken seems to suggest (1981), or to the interference of borrowing from standard type-C dialects.

The most interesting dialects from the present point of view are those which fall into category A according to the scheme in (3). These dialects retain a three-way distinction among ME /a:, ɛ:, e:/ and thus provide a valuable point of comparison for the similar contrasts found in BV and reconstructed for sixteenth-century SSE by Jespersen, Zachrisson, Ekwall, Luick and (for different reasons) Labov. On at least two grounds it makes sense to consider the Scots and English type-A dialects separately. First of all, the development of ME /ai/ (BAIT) must be taken into account when discussing the fate of ME /ɛ:/ in England, since in some cases these two vowels have merged. ESc /ai/, on the other hand, has generally not interfered with the development of ESc /ɛ:/, since it has maintained an independent existence in word-final position and generally merged with ESc /a:/ elsewhere (see Aitken 1981: 132). Secondly and more importantly, the loss of phonemic vowel length in Scots has produced several developments in the system of historically long front monophthongs that are quite different from anything that has happened in England. This has threatened to bring about a contextual merger between ESc /a:/ or /ɛ:/ and ESc /e/ (MET), so I include reflexes of the latter in the Scots material presented here. The survey of six type-A dialects in England I give here is drawn from material in Orton, Sanderson & Widdowson 1978 and, wherever further detail was needed, from the Survey of English Dialects Basic material (Orton et al 1962-69). Information on Scots dialects of the same type is taken from Catford 1957.

The reflexes of ME /e:, ɛ:, a:, ai/ in six English type-A dialects are listed in Tab 4-4. The transcriptions are to be interpreted in broad phonetic terms. Thus the first element in [iə] represents any front unrounded vowel with a quality higher than half-close; the schwa off-glide symbol covers a relatively large central

Tab 4-4. Reflexes of ME /e:, ɛ:, ai, a:/ (MEET : MEAT : BAIT : MATE) in six English type-A dialects (based on Orton et al 1978).

<table>
<tr><th>ME vowel</th><th>e:</th><th>ɛ:</th><th>ai</th><th>a:</th></tr>
<tr><td>Lancs/s. Yorks</td><td>i:</td><td>ɛi/iə</td><td colspan="2">e:</td></tr>
<tr><td>Lincs</td><td>i:</td><td>iə</td><td colspan="2">ɛə</td></tr>
<tr><td>Westmorland</td><td>i:</td><td>iə</td><td>e:</td><td>ea</td></tr>
<tr><td>Yorks (West Riding)</td><td>əi</td><td>iə</td><td>e:</td><td>ia</td></tr>
<tr><td>Bucks</td><td>i:</td><td colspan="2">(iə) ɛi</td><td>eə</td></tr>
<tr><td>Devon/Cornwall</td><td>i:</td><td colspan="2">ɛi</td><td>e:</td></tr>
</table>

area in vowel space (see 4.6 for further discussion). Before undertaking a reconstruction of the changes that have produced the current reflexes listed in Tab 4-4, it will help the discussion to make a couple of preliminary classifications of the dialects in question. The first differentiating characteristic that should be noted arises from the fact that the development of ME /ɛ:/ from its OE sources was by no means uniform throughout England (see Wakelin 1977: 89-90). In some cases it is necessary to recognise two vowel classes that are equivalent to a single ME /ɛ:/ class in most other type-A dialects. The alternative reflexes /ɛi/ and /iə/ that show up under ME /ɛ:/ in Lancs/s. Yorks and Bucks illustrate separate developments of ME '$\bar{e}_3$' (from OE short /e/ lengthened in open syllables, e.g. steal, speak, eaves) and ME '$\bar{e}_2$' (from OE /æ:ɑ/ (as in cheap, east, stream), or OE /æ:/ (as in leave, seat, wheat), or other sources including French or Latin loanwords containing stressed e (as in supreme, scheme, obscene)). In most dialects, $\bar{e}_2$ and $\bar{e}_3$ were generally merged under /ɛ:/ by late ME times (see the discussion in Luick 1921: 596).

As a second point of classification, we may note three different developments of ME /ai/ (BAIT) illustrated in Tab 4-4. These can be summarised as follows by extending the scheme in (2) to include the BAIT class:

(4)

(a)	(b)	(c)
MEET	MEET	MEET
MEAT	MEAT	{ MEAT BAIT }
BAIT	{ BAIT MATE }	
MATE		MATE

In dialects of type (4a) ME /ai/ has retained an independent existence, e.g. Westmorland and Yorks West Riding. In type (4b) it has merged with ME /a:/, the development it followed in SSE and related dialects. This is the situation in Lancs, south Yorks and Lincs. Dialects of type (4c) include Devon and Cornwall where ME /ai/ is merged with ME /ɛ:/ and Bucks where ME /ai/ and $\bar{e}_3$ are merged.

As a third step in the analysis of the material in Tab 4-4, we can look at the relative positions of the reflexes of ME /ɛ:/ and /a:/. In each of the dialects either or both of these vowels have developed into diphthongs. In terms of a conventional chain-shift model, the diphthongal reflexes would be described as having 'dropped out' of the system of raising long monophthongs. I wish to argue later on that, by adopting a bimoric analysis of long vowels and diphthongs, it is possible to speak of the diphthongs in question as continuing to participate in chain-shifts. For the moment, however, let us treat them as conforming to the traditional nucleus-plus-glide arrangement. In two of the dialect-areas given in Tab 4-4 the relative positions of the ME /ɛ:/ and /a:/ nuclei are preserved, i.e. the reflex of the former remains higher than that of the latter: Westmorland (ME /ɛ:/ > /iə/, ME /a:/ > /ea/) and Lincs (ME /ɛ:/ > /iə/, ME /a:/ > /ɛə/). In one dialect area, Yorks West Riding, the nuclei of the ME /ɛ:/ and /a:/ reflexes occur at identical heights, the relative positions of the vowels being retained in the glide alone: ME /ɛ:/ > /iə/, ME /a:/ > /ia/. In contrast, the historical positions of the nuclei have been reversed in Devon and Cornwall where ME /ɛ:/ > /ɛi/ and ME /a:/ > /e:/. A similar pattern is found in dialects where ME $\bar{e}_2$ and $\bar{e}_3$ have followed distinct developments. In these cases, although the reflex of ME $\bar{e}_2$ retains a higher position than that of ME /a:/, the nucleus of ME $\bar{e}_3$

is now lower than the latter. Thus in Lancs/south Yorks and Bucks ME $\bar{e}_3$ has developed to /ɛi/, while ME /a:/ is now /e:/ or /eə/. The information on these dialects is valuable for the light it may shed on the development of ME /ɛ:/ and /a:/ in BV and its ancestor dialects where, as we have seen (4.3), a similar reversal of positions appears to have taken place. More on this below.

Tab 4-5. Reflexes of ESc /e:, ɛ:, a:, e/ (MEET : MEAT : MATE : MET) in five Scots type-A dialects (based on Catford 1957).

ESc vowel	e:	ɛ:	a:	e
n.e. Angus	i(:)	<u>e</u>(:)	ɛ:	ɛ(:)
Kirkcudbright	i(:)	e(:)	ę(:)	ɛ̨(:)
e. Fife	i(:)	e(:)	e:	ɛ̨(:)
Shetland:				
n.isles/Yell/Unst	i(:)	e(:)	ɛ:	ɛ(:)
mainland/Skerries	i(:)	e(:)	e:	ɛ(:)

The vowels in the MEET, MEAT, MATE and MET classes in five Scots type-A dialects are listed in Tab 4-5. To understand the developments that have produced these reflexes, it is necessary to take into account the effects of Aitken's Law. The vowels that appear in Tab 4-5 with a parenthesised length mark (e.g. [e(:)]) are to be interpreted as being positionally long or short. Specifically, they are long in Aitken's Law 'long' environments (i.e. before /v, ð, z, r/, a morpheme boundary, or another vowel - see 1.2.2) and short elsewhere. Vowels written with an unparenthesised length mark (e.g. [e:]) are to be understood as long in all stressed positions. Aitken's Law has had its greatest impact on the 'core' dialects of central Scotland where all vowels in the system are affected with the exception of the reflexes of ESc short /i, u/. As far as the four vowel-classes listed in Tab 4-5 are concerned, only Kirkcudbright appears to belong to this core group. The other four dialect-areas are typical of geographically peripheral areas of Scotland where Aitken's Law has not gone to completion (see Aitken 1981). Thus while the reflexes of ESc /e:, ɛ:, e/ are positionally short or long in northeast Angus, east Fife and Shetland, just as they are in the central Lowlands, ESc /a:/ remains unaffected by the loss of phonemic length.

The importance of Aitken's Law in the distribution of ESc /e:, ɛ:, a:, e/ reflexes in Tab 4-5 becomes clear when we note that, in east Fife and Shetland mainland/Skerries, a complete merger of the MEAT and MATE classes has only been prevented by the fact that the loss of phonemic length has affected one vowel but not the other. Qualitatively, the reflexes of ESc /ɛ:/ and /a:/ are identical in these dialects (i.e. half-close front), and it is only a quantity difference that maintains the contrast. In fact the presence of phonemic length in the reflex of ESc /a:/ and positional length in ESc /ɛ:/ means that the opposition is only maintained in certain environments. There has been a partial merger of the two vowels in contexts where ESc /ɛ:/ remains long. This is evident from the following examples which I recorded in Buckhaven, east Fife:

(5)

Aitken's Law environment	ESc /ɛ:/		ESc /a:/	
'short'	[met]	meat	[me:t]	mate
'long'	['e:zë]	easy	['le:zë]	lazy

In the other dialects listed in Tab 4-5, the ESc /ɛ:/ : /a:/ distinction is maintained primarily as a quality contrast. This is true both of dialects where there is no length contrast between the vowels (as in Kirkcudbright) and of those where there is at least a partial one (northeast Angus, Yell, Unst and the northern Shetland isles). There is no evidence in Scots of the type of leapfrogging that has affected the equivalent vowels in some of the English dialects already mentioned as well as in BV and (presumably) its immediate source dialects. In two of the Scots type-A areas, the positional lengthening of ESc short /e/ (MET) has produced a contextual neutralisation of this class with the MATE set under a half-open front vowel in Aitken's Law 'long' environments: see northeast Angus, Yell, Unst and the northern Shetland isles.

I think I've collected enough material in this section to allow me to undertake a tentative reconstruction of the developments that have produced the various reflexes of ME /ɛ:/ and the vowels that occupy the phonological space immediately adjacent to it in the type-A dialects just discussed. I hope to show that this exercise can help answer the following questions:

(i) What strategies have been employed to prevent a MEAT : MATE merger?

(ii) How is it that ME /a:/ has leapfrogged past ME /ɛ:/ in some dialects?

Answers to (i) should contribute to our knowledge of what was happening to ME /ɛ:/ in SSE during the time when evidence from rhymes and occasional spellings suggested (misleadingly perhaps) that it had merged with ME /a:/. Before proceeding with the reconstruction, I wish to examine a couple of attempts that have been made to provide answers to two similar questions within the framework of generative phonology.

4.5 Rule change in the history of ME /ɛ:/

Halle (1962) claims that the solution to the MEAT : MATE problem in SSE lies in the generative interpretation of phonological change as rule change. His account, which is based on assumptions that the MEAT and MATE vowels were at least superficially merged in Elizabethan English, can be summarised as follows (with a few insignificant notational adaptations).

Halle posits the following 'tense' vowels for the MEET, MEAT and MATE classes in ME:

(6)

MEET	/$\bar{e}$/	mid front
MEAT	/$\bar{æ}$/	low front
MATE	/$\bar{a}$/	low back

This subsystem was retained in EModE, according to Halle, by which time it was subject to the synchronic analogues of two diachronic processes: the fronting of /$\bar{a}$/ (7) and the Great Vowel Shift, of which (8) is a subrule, whereby high 'tense' vowels were diphthongised and nonhigh 'tense' vowels were raised one height.

(7)

$$\bar{a} \longrightarrow \bar{æ}$$

(8)

$$\begin{bmatrix}\bar{e}\\ \bar{æ}\end{bmatrix} \longrightarrow \begin{bmatrix}\bar{i}\\ \bar{e}\end{bmatrix}$$

The operation of these rules on the underlying system in (6) produces the following derivation in sixteenth-century SSE:

(9)

	ē	ǣ	ā
rule (7)	ē	ǣ	
rule (8)	ī	ē	

Despite /ǣ/ and /ā/ being merged on the surface, Halle argues that no restructuring of the underlying phonological system took place at this stage. The child learning English on the basis of the surface output in (9) reconstructed the original system on the basis of particular morphophonemic processes which required that /ǣ/ and /ā/ remain underlyingly distinct. The most important of these is the laxing of 'tense' vowels that governs alternations of the <u>sane</u>(MATE) ~ <u>sanity</u> and <u>supreme</u> (MEAT) ~ <u>supremacy</u> type. The surface neutralisation of the underlying /ǣ/ vs /ā/ contrast, according to Halle, was subsequently undone in the late seventeenth century by the addition of the following raising rule which was ordered above (7) to yield the derivation in (11):

(10)

$$\bar{æ} \longrightarrow \bar{e}$$

(11)

	ē	ǣ	ā
rule (10)	ē		ā
rule (7)	ē	ǣ	
rule (8)	ī	ē	

This is certainly an elegant account of how MEAT was allegedly merged with MATE (on the surface as in (9)), only to reseparate subsequently and undergo (surface) merger with MEET (as in (11)). However, analyses such as this which incorporate the context-free surface neutralisation of underlying contrasts raise some well-known thorny issues which I take up in the next chapter. For the time being it is sufficient to make a point about the accessibility of underlying oppositions that never appear on the surface. It might just be possible to argue that speakers acquiring English in the sixteenth century were able to extrapolate an underlying /ā/ from surface occurrences of [ǣ] in morphemes that alternated with 'lax' /a/ (e.g. sane ~ sanity). However, it seems unreasonable to expect that speakers could extend this strategy to cover the large number of items containing [ǣ] < historical /ā/ which are nonalternating, e.g. same, tale, gate (the 'free ride' principle). Yet this is exactly what speakers would need to have done, since the MEAT and MATE classes subsequently split again along historical lines when rule (10) was allegedly added to the grammar of English. This objection of course lies at the heart of attempts by phonologists to limit the setting up of abstract underlying segments that never appear in surface alternations (see for example Kiparsky 1973a and the discussion in 5.3.6).

Quite apart from the theoretical problems that are inherent in Halle's 1962 analysis, his interpretation of the historical evidence on MEAT : MATE is questionable. He seems to have fallen into the same trap as Wyld in assuming that rhymes and occasional spellings in sixteenth-century SSE testify to a genuine (surface) merger of the MEAT and MATE classes. As we have seen (4.2), studies based on the more reliable reports of orthoepists indicate otherwise. This is in fact the view taken in The Sound Pattern of English where Halle himself abandons his earlier treatment of the MEAT : MATE problem. Chomsky & Halle implicitly concur with the view of Jespersen, Zachrisson, Ekwall and Luick that ME /ɛ:/ avoided merger with ME /a:/ by raising out of its path, only to merge with ME /e:/ (1968: ch 6). They part company with the latter, however, over how the raising of the MEET, MEAT and MATE vowels proceeded. Where the earlier writers, in keeping with their neogrammarian convictions, assume that gradual sound change was at work, the generativists' contention, as outlined in Postal 1968 and King 1969, is that it was necessarily a phonetically abrupt change brought about by rule addition. It is in these terms that Chomsky & Halle and Wolfe

(1972) seek to account for the raising of ME /ɛ:/ and /a:/.

However, treating the raising of the MEAT and MATE vowels in terms of rule addition does not allow us to get to grips with one of the puzzling aspects of the change. Even if the vowels were not truly merged in sixteenth-century SSE, it is nevertheless the case that they could not be reliably and consistently differentiated by some speakers (as the rhyme and occasional spelling evidence suggests). What was the nature of the phonetic similarity that was the source of this potential confusion? According to Chomsky & Halle's account, which assumes a three-height vowel system for English, the MEAT and MATE vowels were distinguished by at least one body-of-tongue feature specification throughout the Great Vowel Shift. During the period of potential confusion between the vowels, the distinction was underlyingly [+back] (MATE) vs [-back] (MEAT) and, after the operation of synchronic raising and fronting rules, phonetically [+low] (MATE) vs [-low] (MEAT). It seems unlikely that such gross phonetic differences could have been the source of confusion between the two vowels.

Labov's solution to the problem, as noted in 4.2, is to assume that the MEAT and MATE vowels in sixteenth-century SSE were differentiated by a phonetic margin that was much finer than the [±back] or [±low] specifications can allow. Labov is in somewhat of a dilemma here. His findings on present-day variation indicate that it is necessary to recognise minute phonetic differences which may suggest gradual change in progress (see the discussion in 3.1). However, he feels obliged to incorporate these findings in a generative model of phonological change which was initially formulated on the premise that there was no such thing as phonetically gradual change. Labov seeks to resolve this paradox by claiming that fine-grained phonetic differences are simply low-level manifestations of discrete distinctions that hold at an 'abstract' level (Labov et al 1972: 267; Labov 1981). Thus the raising of the MEAT and MATE vowels may have proceeded gradually, at least initially, but this would have been in response to the addition of a rule or rules which produced a discrete change in the feature specifications of the two vowels. The rules in question would presumably resemble those that appear in Chomsky & Halle's account of the changes involved. One problem with the latter description, however, is that it fails to distinguish two quite different routes by which changes in MEAT and MATE occurred.

The documentary and comparative evidence indicates that the raising of these vowels (as well as the other vowels participating in the Great Vowel Shift) was initially an internal evolutive change in SSE (in parallel with other dialects). As we have seen, however, there is a good case for assuming that the merger of the MEAT and MEET vowels was achieved by the transfer of MEAT items from one discrete vowel class into another through dialect borrowing. This is how Wyld, Kökeritz, Dobson and Labov interpret the historical evidence. The lexically gradual nature of the transfer is indicated by the existence of MEAT items in sixteenth- and seventeenth-century SSE which alternated between a mid and a high vowel. The ultimate source of the borrowing presumably lay in a dialect in which the raising of the MEAT vowel into the position of MEET was an internal change. Assuming for the moment that the initial raising of the vowels in question can be adequately accounted for in terms of rule addition, to extend this model to the transfer of MEAT items into the MEET class misses the point that the latter change (borrowing) is quite a different animal from the former (internal evolutive change). It may be argued that borrowing and internal evolutive change are simply two different low-level strategies for implementing the same type of underlying (rule) change. However, in constructing a model of lexical transfer in progress, it seems a much more parsimonious solution to assume that speakers have available to them a choice of alternative representations for each lexeme rather than some mechanism whereby an underlying segment may 'become' another segment on the surface. I pursue this question in more detail in 5.2.2.

For Labov, one of the strongest pieces of evidence in favour of rule addition as a mechanism of evolutive change comes from cases where one vowel has bypassed another in phonological space without undergoing merger with it. Labov cites two examples where this has allegedly happened: the reversal of historically short /i/ (BIT) and /e/ (BET) in Glasgow and of '/ahr/' (HARD) and '/ɔhr/' (HOARD) in southwest Utah (Labov et al 1972: 267). This type of change, Labov suggests, can be adequately accounted for in terms of the addition of flip-flop rules (exchange or alpha-switching rules). These would certainly provide elegant explanations of how the leapfrogging of the MEAT and MATE vowels may have occurred in some of the nonstandard English dialects described in the last section as well as in the ancestor dialects of BV. In fact it might be possible to account for these particular changes in terms of an extension of the exchange rule that Chomsky & Halle formulate for the Great Vowel Shift in SSE (1968: 256). However, close inspection of Labov's discussion of flip-flop rules reveals that his conception of the device is significantly different from Chomsky & Halle's.

The effect of Chomsky & Halle's vowel shift rule is to switch the positions of underlyingly high and mid tense vowels (1968: 256; see also Wang 1968):

(12) $$\begin{bmatrix}\alpha\text{high}\\ -\text{low}\end{bmatrix} \longrightarrow [-\alpha\text{high}] \quad / \quad \begin{bmatrix}\overline{}\\ +\text{tense}\\ +\text{stress}\end{bmatrix}$$

Labov's informal statement of the flip-flop rules involved in the leapfrogging cases he mentions indicates that he is not talking about a genuine switch in the sense that Chomsky & Halle are. Whereas rule (12) produces a direct exchange in the positions of the input vowels, the phonetic effect of Labov's flip-flops is the 'rotation of one vowel round the other' (Labov et al 1972: 267). In other words, for Labov there is some phonetic dimension that maintains the distinction between the two vowels while the reversal is in progress. From his discussion of falsely reported mergers in the present day, it is evident that he understands this dimension to be a difference of peripherality in vowel space (Labov et al 1972: ch 6).

The difference between Labov's and Chomsky & Halle's conceptions of exchange rules is particularly important when it comes to examining cases where a flip-flop has been adopted by some members of a given speech community but not by others. According to Labov's interpretation, the phonemic identity of a particular surface vowel will always be recoverable from its phonetic shape while the reversal is underway. This is by dint of the fact that the vowels will be differentiated by some degree of peripherality even when they occur at the same general height. (According to Labov's model of chain-shifting, the vowel that is raising will follow a peripheral path 'around' the vowel it is bypassing (Labov et al 1972: ch 4).) According to Chomsky & Halle's view, however, the unique relation between surface and underlying vowel does not necessarily always hold during an exchange shift. In the case of their account of the Great Vowel Shift, this depends on the ordering of rule (12) with respect to the following rule which diphthongises high tense vowels (1968: 256):

(13)

$$\emptyset \longrightarrow \begin{bmatrix}-\text{voc}\\ -\text{cons}\\ \alpha\text{back}\end{bmatrix} \quad / \quad \begin{bmatrix}\text{V}\\ +\text{tense}\\ +\text{high}\\ \alpha\text{back}\end{bmatrix} \_\_\_$$

That is, /ī/ —> [īy], /ū/ —> [ūw] (Chomsky & Halle's [y] = IPA [j]). In a synchronic grammar of fifteenth-century English, (13) must be ordered above (12), since only underlying high vowels undergo diphthongisation at this stage of the derivation, e.g. /tīm/ —> [tīym] (by rule (13)) —> [tēym] (by rule (12)) time, but not /tēm/ —> *[tīm] (by rule (12)) —> *[tīym] (by rule (13)) teem.

If the synchronic sequence of rules (13) and (12) corresponds to the historical order in which they were added to the grammar of English, we get the following chronology:

(14)

Stage A	/tīm/	time	/tēm/	teem
	[tīm]		[tēm]	
Stage B	/tīm/	time	/tēm/	teem
rule (13)	tīym			
	[tīym]		[tēm]	
Stage C	/tīm/	time	/tēm/	teem
rule (13)	tīym			
rule (12)	tēym		tīm	
	[tēym]		[tīm]	

In a situation where either stages (14A) and (14B) or (14B) and (14C) exist side by side in the same speech community, being represented by different groups of speakers and/or styles, the phonemic identity of individual surface vowels is always uniquely recoverable from the phonetic context. Surface [ē] from underlying /ī/ will always be differentiated from [ē] from underlying /ē/ by the presence of a following [y] glide: [tēym] time (stage (14C)) vs [tēm] teem (Stage (14B)).

Chomsky & Halle, however, explicitly state that the synchronic order of rules (12) and (13) does not necessarily reflect the sequence in which they were added to the grammar of English (1968: 256). They acknowledge the possibility that the vowel shift rule (12) was added first and that diphthongisation (13) was added later in time, being introduced above (12) in the synchronic order. This produces the following hypothetical chronology:

(15)

Stage A	/tīm/	time	/tēm/	teem
	[tīm]		[tēm]	
Stage B	/tīm/	time	/tēm/	teem
rule (12)	tēm		tīm	
	[tēm]		[tīm]	
Stage C	/tīm/	time	/tēm/	teem
rule (13)	tīym			
rule (12)	tēym		tīm	
	[tēym]		[tīm]	

The addition of the vowel shift rule (12) at stage (15B) before diphthongisation takes place produces a quite different state of affairs to that projected in (14). In a situation where stages (15A) and (15B) occur within the same speech community, the unique relation between surface and underlying nonlow tense vowels is broken. The phonemic identities of surface [ī] and [ē] are not recoverable from the phonetic context. For example, [ē] may be the realisation of underlying /ē/ according to synchronic grammar (15A) or the realisation of underlying /ī/ by vowel shift (12) in grammar (15B). Thus [tēm] may be time or teem just as in the back vowel series [ʃōt] may be shout or shoot. Chomsky & Halle argue that the addition of exchange rules such as (12) does not lead to serious impairment of intelligibility between speakers who have adopted the change and those that have not. This claim is based on the 'well known' finding that 'intelligibility is only moderately affected in normal everyday speech even when all vowel contrasts are eliminated and a single vowel is made to stand in their place ' (1968: 256). It is certainly true that listeners, when decoding utterances, rely on a lot more than phonetic cues to remove potential ambiguities that may result from phonological change. But the point about the accessibility of underlying phonological contrasts is still important here. A child acquiring English in a speech community where grammars (15A) and (15B) exist side by side is exposed to primary linguistic data which include mid tense vowels whose 'correct' phonemic identity is not recoverable from surface context. The child may find access to underlying representations that are not identical with their surface manifestations in the case of morphemes which show alternations between 'tense' and 'lax' vowels of the divine ~ divinity, keep ~ kept type. However, no such morphophonemic inferences can be drawn in the case of the vast number of items which are nonalternating and which must be allocated to arbitrary lexical sets. It seems inconceivable that this could be achieved without significantly disrupting the historical pattern of lexical distribution. That this did not happen is evident from the fact that the vowel classes in question (i.e. MEET vs BITE and BOOT vs BOUT) have remained more or less intact up to the present day (discounting changes not directly implicated in the main Great Vowel Shift such as the shortening of ME /o:/ in good, look, etc.).

I take the view that, if we are going to describe the Great Vowel Shift in terms of an exchange rule at all, we may as well be realistic and accept that (14) represents a much more likely development than (15). This corresponds to the traditional interpretation of the historical evidence that the originally high long (= Chomsky & Halle's 'tense') vowels (in BITE and BOUT) 'dropped out' of the system of long monophthongs through diphthongisation, thus avoiding a clash with the raising nonhigh vowels. (Whether diphthongisation provoked raising of the nonhigh vowels (a drag-chain shift) or occurred in response to it (a push-chain) is not at issue here; see Jespersen 1909 and Luick 1921 for opposing views on this question and Lass 1976 (ch 2) for a summary and further discussion.) No matter what theoretical model we impose on the Great Vowel Shift, it seems clear that one of the effects of the diphthongisation of ME /i:/ and /u:/ (Chomsky & Halle's 'tense' /ī/ and /ū/) was to preserve the contrast between historically high and mid long vowels. Even if the nuclei of historical /i:/ and /e:/ and of /u:/ and /o:/ appeared at any stage at identical phonetic heights, the phonemic contrasts would always have been recoverable from the phonetic context through the presence vs absence of a following glide.

Diphthongisation as a merger-preventing strategy in the Great Vowel Shift is usually only associated with historically high long vowels. However, a reconstruction of the developments that have produced the present-day reflexes of ME /a:/ and /ɛ:/ in the nonstandard English dialects in Tab 4-4 indicates that it has also played a contrast-preserving role among historically nonhigh vowels in certain instances.

Before considering diphthongisation of the MEAT and MATE vowels in more detail, I wish to return briefly to Labov's two examples of alleged flip-flop: HARD : HOARD in southwest Utah and BIT : BET in Glasgow. (He could have added BOAT : BUT in Scots too.) These are relevant to the discussion since, according to Labov's account of them, they suggest another merger-avoiding device that might be considered when reconstructing the history of dialects in which the MATE vowel has apparently bypassed that in MEAT. Labov claims that merger is prevented during the reversal in position of the vowels in question by one member of the pair rotating past the other on a relatively more peripheral path. Peripheral here refers to the position of a vowel on a two-dimensional plot defined by the frequencies of the first and second formants. This is the basis on which Labov's model of phonological space is built. I discuss some of the weaknesses that are inherent in this model later (4.6), but for the moment it is sufficient to draw attention to the danger of assuming that a flip-flop on an F_1/F_2 plot necessarily reflects an articulatory flip-flop of the type that is implied by Chomsky & Halle's vowel shift rule (12). Labov provides no details, but in the HARD : HOARD example measurements of F_1 and F_2 do not necessarily give an accurate picture of the articulatory parameters involved. One problem that immediately presents itself is the fact that a lowering of F_2 (and thus an increase in peripherality on an F_1/F_2 plot) may be due to one of a number of physiological factors, the most relevant to this example being a possible increase in lip-rounding. It is obviously crucial to determine exactly what articulatory differences are involved. For instance, changes in lip-rounding may show up as a reversal of positions on an F_1/F_2 plot while the relative tongue-heights of the two vowels remain unchanged. In other words an acoustically defined reversal does not necessarily imply a flip-flop in terms of articulatory space.

We have more information on the Glasgow BIT : BET example. Extreme lowering of ESc /i/ (BIT) is characteristic of many modern Scots dialects: see the reports on southern Border Scots by Wettstein (1942: 3) and Zai (1942: 12), on central and southwestern Scots by Wilson (1923: 28; 1926: 30) and the detailed account of this feature in Glasgow itself by Macaulay (1977: 30-38). In many of these dialects the reflex of ESc /i/ is now lower than that of ESc /e/ (BET) (but not in southeastern Border Scots where the latter has lowered to an open position). Thus in CUS, with its predominantly central and southwestern Scots background, we find /ɛ:/ < ESc /e/ and /ä̈/ < ESc /i/ (see 1.2.3). However, the whole issue of flip-flop here is a pseudo-problem, since the reflexes of ESc /i/ and /e/ are distinguished by much more than their relative heights; differences in centrality and length are also involved. Documentary evidence indicates that ME /i/ was already centralised by the seventeenth century (see Lass's 1980b discussion of John Hart's testimony). Thus any lowering of the vowel after that date (including that which occurred in Scots) took place along a centralised path, with no danger of a collision with the peripheral reflex of ME /e/. Relative peripherality has not been the only phonetic factor that has differentiated the BIT and BET vowels during the course of the apparent flip-flop. Labov overlooks the important factor of the length differences that have developed between the vowels as a result of Aitken's Law.[4] Thus the historically short high vowels /i/ and /u/, as we have seen (1.2.2), are the only two vowels to have retained phonemic shortness throughout the Scots-speaking area. The other historically short vowels /e, a, o/ are generally positionally short or long in core Scots dialects according to the Aitken's Law conditions. In some cases, particularly in US and its source dialects on the west coast of Scotland (including Glasgow), there has been a tendency for historically short nonhigh /e, a, o/ to develop phonemic length (see 1.2.2). The result in these dialects is that there is no danger whatsoever of the BIT and BET vowels collapsing as a result of the lowering of the former. The vowels are now members of two separate subsystems, one containing phonemically short vowels, the other containing, according to the dialect, phonemically or positionally long vowels.

At least three strategies that may be employed in the avoidance of vocalic mergers have emerged from this discussion of flip-flops. These are (i) diphthongisation, (ii) the development of differences in peripherality, and (iii) the development of length contrasts. As should become clear in the next section, all of these have been implemented, either singly or in combination, in those dialects of English where a three-way MEET : MEAT : MATE distinction has been maintained.

4.6 Reconstructing the history of ME /e:, ɛ:, a:/ in type-A dialects

In this section I attempt to reconstruct the recent history of ME or ESc /a:, ɛ:, e:/ in the English and Scots type-A dialects listed in Tab 4-4 and Tab 4-5. Rather than trying to give detailed blow-by-blow accounts of the development of each vowel in each dialect, I will restrict myself to outlining the main principles underlying the reconstruction and to a discussion of a couple of illustrative case-histories. It will help the discussion to have a summary of the main phonetic dimensions along which the three-way contrast is maintained. These are:

(i) Preservation of the relative positions of the historical nuclei.

(ii) Development of differences in peripherality.

(iii) Diphthongisation of one or more of the vowels.

(iv) Development of new length contrasts.

(v) Reversal of the relative positions of the MEAT and MATE nuclei. Strategies (i) and (ii) can be viewed as involving chain-shifting of some kind, while (iii) and (iv) represent different types of Ablenkung (see Luick 1921: 591ff) whereby one or more vowels are deflected out of the subsystem of historically long front monophthongs. Strategy (v) involves the phenomenon of leapfrogging. The distribution of these five strategies across the eleven type-A dialects in Tab 4-4 and Tab 4-5 is given in Tab 4-6. (The parenthesised plus-marks next to Lancs/south Yorks and Bucks indicate that the relative heights of ME $\bar{e}_2$ and /a:/ are preserved while those of ME $\bar{e}_3$ and /a:/ are reversed.)

Tab 4-6. Dimensions along which the MEAT : MATE contrast is preserved in eleven English and Scots type-A dialects.

	1	2	3	4	5
England					
Lincs	+			+	
Westmorland	+			+	
Yorks West Riding	+			+	
Lancs/s. Yorks	(+)	(+)		+	
Bucks	(+)	(+)		+	
Devon/Cornwall		+		+	
Scotland					
e. Fife					+
Shetland					
n.isles/Yell/Unst	+				+
mainland/Skerries					+
n.e.Angus	+		+		+
Kirkcudbright	+				

Key:
1. Relative heights preserved
2. Relative heights reversed
3. Difference in peripherality
4. Diphthongisation
5. Length difference

The most striking point to emerge from Tab 4-6 is the clear difference between English and Scots dialects on two of the dimensions. All but one of the Scots dialects show the development of a length distinction between the MEAT and MATE vowels; none of the English dialects do so. This is an obvious consequence of the fact that the loss of phonemic length which results from the Aitken's Law changes has been restricted to Scots. On the other hand, all of the English and none of the Scots dialects show the development of diphthongal reflexes of the MEAT and/or MATE vowels.

As far as quality contrasts between MEAT and MATE in type-A dialects are concerned, only three preserve monophthongal reflexes differing in height: northeast Angus, Kirkcudbright and Shetland northern Isles/Yell/Unst. The first of these provides the only example of a nonperipheral reflex in the historically front series: [e̱(:)] in MEAT. The historical positions of the MEAT and MATE vowels relative to one another remain undisturbed in all of these dialects, so there is no suggestion that the difference in peripherality between the two reflexes in northeast Angus has anything to do with a flip-flop of the sort described by Labov (see 4.5).

Quality contrasts in the MEET : MEAT : MATE series in the English type-A dialects all involve diphthongisation of some kind in one or more of the vowels. With the exception of /əi/ < ME /e:/ in Yorks West Riding, these diphthongs are all of the 'falling' type; that is, the first element is relatively longer than the second. Otherwise, diphthongal reflexes of the 'rising' type only show up in a couple of the type-A dialects as positional variants of the more general falling diphthongs in the MEAT or MATE classes. For example, the geographically widespread development of ME /ɛ:/ or /a:/ to [jɛ] after historical /h/ shows up in Devon, where we find [jɛt] for heat (Survey of English Dialects VI.13.6). Changes involving 'shifts of syllabicity' in diphthongs from a falling to a rising pattern or vice versa, which have been recognised as a possible mechanism in the avoidance of merger (Labov et al 1972: 226) have not been implemented on a large scale in these dialects. In some instances the falling diphthongs conform to the 'narrowing' pattern that is typical of standard pronunciation in the same front vowel series, i.e. where the second element is closer than the first. The distribution of the narrowing diphthongs in the type-A dialects is not, however, the same as in SSE. Thus while RP has /eɩ/ in MATE, Lancs/south Yorks, Bucks and Devon/Cornwall have /ɛi/ in MEAT but /e:/ or /eə/ in MATE. What is striking about the northern and midland dialects in Tab 4-4 (that is, all except Devon/Cornwall) is the number of diphthongal reflexes of ME /ɛ:/ and /a:/ that are of the 'non-narrowing' type, i.e. diphthongs whose first element is closer than the second /as in /iə/, /eə/, /ɛə/ and even more radically in /ia/, /ea/.

In some traditional accounts of English vowel phonology, these diphthongs would be treated as consisting of a nucleus plus a glide or semivowel. Such a system of description is employed by Trager & Smith (1951), for example, who recognise three such glides: fronting [y] (= IPA [j]), backing [w] and centring [h]. (The last glide is realised phonetically as something like [ə] or, when it occurs after nonhigh vowels, as length.) According to this system, <u>bite</u>, <u>bout</u>, <u>bought</u> in American English are phonemicised as /bayt/, /bæwt/ and /bɔht/. This framework has enjoyed wide currency among American linguists. It has been employed in synchronic as well as diachronic descriptions of English phonology by among others Stockwell (1961) and, with some modifications, by Chomsky & Halle whose underlying 'tense' vowels surface in a shape very similar to Trager & Smith's nucleus-plus-glide representations. It is essentially the system adopted by Labov in his analysis of current vowel shifts in American English. However, there are several reasons why the nucleus-plus-glide arrangement is unsatisfactory for the purposes of the reconstruction I am attempting here. Most of these reasons are given detailed coverage in Lass's more general critique of the model (1976: ch 1). It will suffice just to mention a couple of the points he makes that are particularly relevant here.

First of all, Trager & Smith's claim that their system is valid for all dialects of English is unfounded. They set up a nine-vowel 'overall pattern' or diasystem from which each dialect selects its own subset of vocalic nuclei. Each of these nuclei falls into one of only two types: simple or complex. The short nuclei in <u>bit</u>, <u>bet</u>, <u>bat</u>, etc. are phonologically simple, each consisting of one of the nine vowels in the diasystem. The long nuclei in <u>beet</u>, <u>bait</u>, <u>boot</u>, etc. are phonologically complex, each comprising a vowel plus one of the glides. This analysis holds good for types of English in which all long vocalic nuclei are diphthongal. However, Trager & Smith are apparently unfamiliar with dialects of English in which monophthongal nuclei occur. All of the British dialects I am examining here have at least one vowel of this type in the MEET : MEAT : MATE series. In fact the Scots type-A dialects have simple nuclei which are phonemically or positionally long in all three lexical sets.

One alternative analysis which takes account of dialects with long monophthongs recognises a trichotomous system of nuclear types in English: short, simple long and complex long. This is essentially what is implied by Gimson's (1965) phonemic notation of RP, e.g. /ɛ/ bet, /ɔ:/ bought, /aɩ/ bite. However, as Lass points out (1976: 6), there are certain facts about English phonology which favour at least some kind of dichotomous analysis (although not necessarily along the lines of Trager & Smith's simple vs complex or Chomsky & Halle's lax vs tense or some other such arrangement). For one thing, the distributional characteristics of diphthongs and long monophthongs are identical. For example, both can occur in word-final stressed position, an environment in which short vowels never appear. Moreover, certain important morphophonemic relations in English point to a two-set arrangement of vowels: vowels from one set which contains both diphthongs and long monophthongs alternate with vowels from a short set (e.g. RP /i:/ ~ /ɛ/ in serene ~ serenity, /aɩ/ ~ /ɩ/ in divine ~ divinity. As Lass sees it (1976: ch 1), the biggest problem with the trichotomous analysis from the viewpoint of historical reconstruction is that it forces us to treat monophthongisation and diphthongisation as typological shifts from one vocalic subsystem to another. Not only is this unmotivated but it also obscures the fact that historically long monophthongs can continue to pattern together in chain-shifts even after diphthongisation has occurred. One of the advantages of Chomsky & Halle's dichotomous analysis is that it allows just this sort of patterning to be formally expressed. Thus the input to their vowel shift rule, for example, includes not only nonhigh simple 'tense' vowels (such as /ē, ǣ/ in MEET, MEAT) but also the complex vowels [īy, ūw] (BITE, BOUT) which derive from simple 'tense' /ī, ū/ through a previous rule of diphthongisation (see 4.5). Whether or not the vowel shift rule and similar such derivational devices should be included in synchronic phonological descriptions is debatable. Nevertheless, as far as historical reconstruction is concerned, it would be a disadvantage not to have some formal means of expressing the possibility that, during a system-wide shift, covariation between vowels within a particular subsystem may continue even after diphthongisation has taken place. This is precisely what is needed to account for some of the developments that have occurred in the MEET : MEAT : MATE series among English type-A dialects.

Another problem with the nucleus-plus-glide treatment becomes clear when we examine the exact nature of the so-called glides that appear in the diphthongal reflexes of ME /ɛ:/ and /a:/ in Tab 4-4. Besides the familiar high front type that appears in /ɛi/, there are actually two non-narrowing types: central [ə] (as in /eə/, /iə/, etc.) and low [a] (as in /ia/, /ea/). There is no way in which these can be treated as diaphonic variants of a single abstract centring /h/ off-glide, since in some cases they clearly contrast within the same dialect: see especially Yorks West Riding /iə/ (MEAT) vs /ia/ (MATE). Worse still for the nucleus-plus-glide analysis is the fact that comparative reconstruction of the history of these diphthongs indicates that we have to recognise <u>more</u> than two such non-narrowing glides. One response to this problem might be simply to extend the use of distinctive features normally associated with vowels to the specification of finer quality differences among glides than has hitherto been the practice. This would lead to a proliferation in the number of glides defined as possible by a universal inventory of phonological features. Indeed, logically there would be as many nonvocalic, nonconsonantal segments as there are vocalic ones.

Note that the quality differences in the so-called centring off-glides in the type-A dialects might go undetected if acoustic measurement techniques of the type favoured by Labov, Yaeger & Steiner (1972) were employed. The majority of the vowel shifts investigated in Labov et al's study involve the raising of 'tense' vowels, many of which contain centring off-glides similar to those encountered in the English type-A dialects discussed here. Individual occurrences of such vowels are mapped as single points on a two-dimensional plot whose axes are defined by the frequencies of F_1 and F_2. In other words, for the purposes of mapping vowel systems, diphthongs are treated as if they were steady-state vowels. According to Labov et al, it is the quality of the vocalic nucleus that is to be measured in such cases. The temporal location for measurement is selected by determining the point of inflection of F_1 or, if this proves to be steady-state, that of F_2 (1972: 29). (If both F_1 and F_2 are steady-state, measurement is made at the temporal centre of F_1.) It is highly likely that the nuclei of /iə/ and /ia/ in Yorks West Riding would be registered as identical or very similar if these measurement techniques were employed. Ignoring the quality differences in the off-glides would give the false impression that the two vowels were merged in this dialect.

In fact, an economical alternative to the nucleus-plus-glide arrangement is available to us in the form of a vowel-cluster analysis which has been applied to just the sort of vowel shift phenomena I am looking at here (see especially Vachek 1959 and Lass 1976: ch 1). Briefly, the analysis is based on the assumption that the underlying dichotomy in English vowels takes the form of a monomoric /V/ vs bimoric /VV/ contrast. Short vowels fall into the monomoric set; diphthongs and long monophthongs are both treated as sequences of two morae. The only difference between diphthongs and long monophthongs, according to this view, is that the two elements are dissimilar in the former but identical in the latter. Lass shows that all the main change-types that affect vowels can be handled quite adequately and simply within this model (1976: 33-34). For example, lengthening of a short vowel involves the addition of an extra mora (V —> VV); shortening involves loss of a mora (VV —> V). Diphthongisation takes the form of dissimilation of two morae in a cluster; monophthongisation represents assimilation. Dissimilation is effected by one mora raising, lowering, retracting, or advancing, while the other remains static, or by both morae shifting in different directions. Monophthongal shifting in long vowels takes the form of both morae in a cluster moving in tandem.

This model provides us with an ideal framework within which to treat covariation among both monophthongal and diphthongal reflexes of the ME MEET, MEAT, MATE, BAIT and MET nuclei in type-A dialects. The values of these vowels in ESc and/or late ME can be given the following phonological representations (cf. Lass 1976: 27; 1978):

(16)

MEET	/ee/
MEAT	/εε/
MATE	/aa/
BAIT	/ai/
MET	/e/

As far as the characterisation of diphthongs is concerned, one of the most obvious advantages that the bimoric analysis has over those incorporating some kind of nucleus-plus-glide arrangement is that it allows us to conceive of shifting as taking place not only in what has traditionally been described as the vocalic element but also in the so-called nonvocalic element. In other words, the two morae of a vocalic cluster may follow relatively independent trajectories in vowel space. Reconstructing the Great Vowel Shift within a bimoric framework makes it possible to show explicitly how the MEAT : MATE opposition in each of the English type-A dialects has been maintained as one of three sorts of quality contrast:

(i) between the first morae alone (e.g. /iə/ vs /ɛə/ in Lincs);

(ii) between the second morae alone (e.g. /iə/ vs /ia/ in Yorks West Riding); or

(iii) between both sets of morae (e.g. /ɛi/ vs /ee/ in Devon/Cornwall).

Another advantage of the vowel-cluster approach is that it allows us to reconstruct the development of ME /ɛ:/ and /a:/ in the 'leapfrogging' type-A dialects without having to resort to such elaborate devices as the addition of exchange rules. What has evidently happened in these cases is that, while the first mora of the MATE vowel was bypassing that of MEAT, the contrast between the two classes was maintained in the second morae. For example, in Devon/Cornwall the first element in MATE at half-close is now higher than the half-open first element in MEAT. However, the relative historical positions of the two vowels are partially maintained in the second elements of the vowel clusters: close in MEAT vs half-close in MATE. The development of these vowels in Devon/Cornwall from their late ME sources can be schematised as in Fig 4-1. Similar developments involving $\bar{e}_3$ and /a:/ can be postulated for the other two 'leapfrogging' areas Lancs/ south Yorks and Bucks.

Reconstruction of the development of ME/ESc /ee, ɛɛ, aa, ai, e/ in the type-A dialects is by necessity almost entirely comparative, since there is relatively little historical documentary evidence available on them. A few comments on provincialisms by orthoepists whose primary

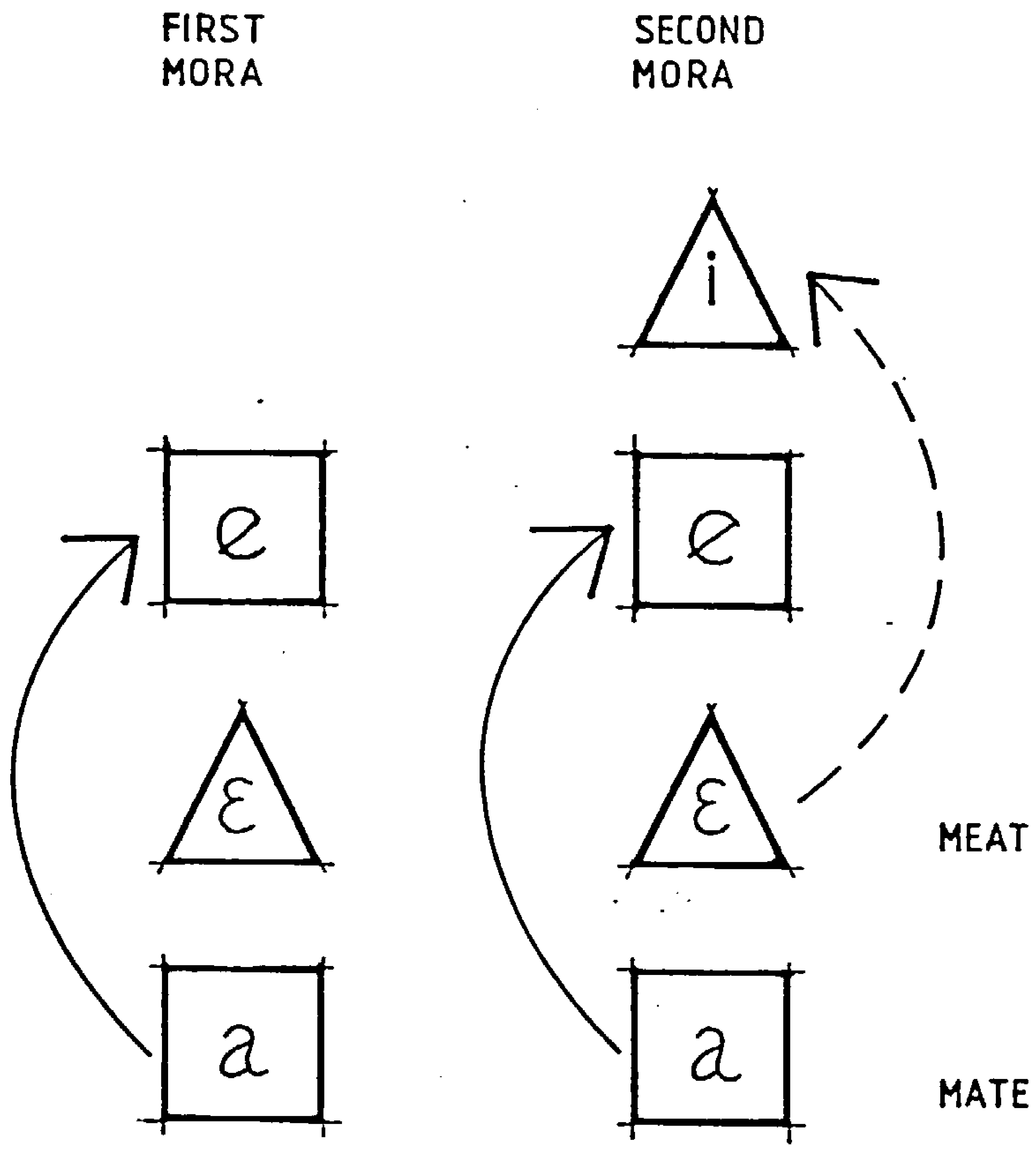


Fig 4-1. Development of ME /a:/ > /e:/ (MATE) and ME /ɛ:/ > /ɛi/ (MEAT) in Devon/Cornwall.

concern was the description of SSE are helpful, but there is little else in the way of direct evidence to go on. We can be reasonably sure that the late ME input to the shifts that have taken place in the dialects in question was something like (16). The task in hand is to reconstruct the intermediate stages between late ME and the present day. It will be necessary of course to place constraints on the postulation of intervening reflexes and the changes that produced them. Two principles outlined by Lass (1978) can be taken as a guide in the reconstruction. Firstly, the individual changes should be natural in the sense that they are attested cross-linguistically and if possible in English. As far as the shifting of vowels in the MEET : MEAT : MATE series is concerned, the domain of natural changes would appear to be largely restricted to those that proceed by relatively small articulatory steps. Quantum leaps in vowel space are uncommon, at least in internal evolutive change, unless they involve mutual assimilation or dissimilation, e.g. /au/ > /oo/ or /ee/ > /ɛi/ (see Lass 1978). Secondly, the intermediate stages between the input and the observed output should also be natural in this sense and should if possible be attested as reflexes of the same etymological category.

The mergers of MEAT : MEET and MATE : BAIT in present-day standard dialects are generally assumed to post-date the mid-seventeenth century (see Wolfe 1972: ch 3; Lass 1976: 87-88). By that date the early stages of the Great Vowel Shift at least in its broadest outlines were probably complete throughout England and Scotland (with some regional variation). We can therefore take it that the following raising in the MEET : MEAT : MATE series occurred in most dialects, including the type-A ones under discussion here:

(17)

MEET	/ee/	>	/ii/
MEAT	/ɛɛ/	>	/ee/
MATE	/aa/	>	/ɛɛ/

I am not concerned with putting exact dates on the subsequent changes in type-A dialects. However, it should be clear that it is crucial to establish the relative chronologies of many of the changes in order to understand how mergers in the MEET : MEAT : MATE : BAIT series have been avoided. For example, the identity-dissimilation of the MEAT nucleus from /ee/ to /iə/ in Yorks West Riding and Westmorland must have preceded the identity-assimilation of /ai/ in BAIT to /ee/; otherwise the two classes would have collapsed.

One thing that becomes clear from a consideration of the comparative evidence is that the development of the vowels in MEET, MEAT and MATE from their ME sources has not necessarily followed the shortest route in every case. For example, the simplest path by which ME /εε/ could have become /εi/ in Devon/Cornwall, Lancs/south Yorks and Bucks would have been through the raising of the second mora while the first remained at a half-open position. However, documentary and comparative evidence indicates that these dialects participated in the general raising of ME /εε/ to /ee/ which was then dissimilated to /ei/, the first mora subsequently lowering again to produce current /εi/. The intermediate /ei/ reflex (distinct from the MATE vowel) appears sporadically in type-A areas, according to the Survey of English Dialects Basic material. Its conservative nature is confirmed by the fact that it was once more widespread in the dialects in question: it is recorded as the main late-nineteenth-century pronunciation by Wright (1905: 60-62). The development of ME /εε/ into a narrowing diphthong has produced a merger of the MEAT and BAIT classes in those dialects where ME /ai/ has retained its diphthongal character, i.e. Bucks and Devon/ Cornwall. The merger appears to have taken place before the relatively recent lowering of the first mora in MEAT to half-open position, since the MEAT and BAIT classes both contained /ei/ in nineteenth-century Bucks and Devon, according to Wright (1905: 47, 60-62).

The shortest route by which ME /aa/ could have become /ea/ in Westmorland would simply be through the raising of the first mora while the second maintained its open position. However, this is almost certainly not what happened. Sixteenth- and seventeenth-century accounts of northern English pronunciation (e.g. Smith 1568 and Gil 1619) and comparative evidence from present-day surrounding dialects indicate that ME /aa/ raised to a mid monophthong in the north of England before undergoing diphthongisation. In fact the first mora of the MATE nucleus in Westmorland appears originally to have raised as high as close position (i.e. /ia/, the stage at which it remains in nearby Yorks West

Riding) before lowering again to half-close. Ellis reports /ia/ as the usual pronunciation in late-nineteenth-century Westmorland (1889: 538). (See Hedevind, who also reports /ea/ in MATE in Yorks West Riding, for a full discussion of these developments (1967: 162ff).)

The most problematical aspect of reconstructing the history of the non-narrowing diphthongs in English type-A dialects is to determine the trajectories along which the second morae have developed. The question boils down to whether the path followed was always centralised or was, in some instances at least, peripheral. The traditional view is that these diphthongs arose through the development of a fully central off-glide (Luick's Abstumpfung (1921: 586ff)). The validity of this view, at least as far as northwestern English dialects are concerned has recently been challenged by Hedevind (1967) and Lass (1976). Hedevind claims that the diphthongisation of the MEAT and MATE nuclei in the dialect of Dentdale in the West Riding of Yorkshire came about through the 'differentiation' of the vowels into two elements, the second of which followed a non-central path to yield present-day /ie/ (MEAT) and /ea/ (MATE) (1967: 162-175). Lass shows how these developments can be elegantly handled within a bimoric model of vowel shifting (1976: 90ff). For example, he proposes the following historical sequence for the MATE nucleus in Dentdale (90), in which the second mora follows a peripheral path: /aa/ > /ɛɛ/ > /eɛ/ > /iɛ/ > /ia/ > /ea/.

However, I think it can be shown that the difference between Luick's and Hedevind's reconstructions of the history of the non-narrowing diphthongs is largely notational. What substantive differences there are between their accounts seem to be restricted largely to the different degrees of centrality they ascribe to the non-narrowing glides. In the latter instance, this disparity is probably simply a reflection of regional variation anyway. Hedevind represents the Dentdale MEAT and MATE vowels in broad phonetic transcription as [ie] and [ea] respectively. This gives the impression that the second elements in each of the vowel-clusters have followed peripheral paths, which is certainly how Lass interprets his account. However, in his impressionistic description of the vowels, Hedevind clearly states that the second elements are retracted or centralised (1967: 65-66). A survey of other English dialects with non-narrowing diphthongal reflexes of the MEAT and/or MATE vowels indicates that nonperipheral second elements are by far the most usual development. In the records of the Survey of English Dialects, transcriptions of the second element in the relevant words appear overwhelmingly as [ə] or [a̩]. Rare instances of half-open, front or relatively front second elements are recorded in one or two localities (e.g. [ɩɛ] or [ɩɛ̈] - see Kolb 1966: 137), but there is no trace of a half-close peripheral off-glide such as in [ie].

The indications are that when schwa is used in the Survey of English Dialects Basic material to represent an off-glide it is to be interpreted as a cover symbol for a relatively large area of central vowel space. This is confirmed by consulting detailed descriptions of individual dialects and comparing these with the Survey's transcriptions for the same or nearby localities. For example, the second element of the MEAT nucleus in Dent (locality 6.5 in the Survey), which according to Hedevind's narrow transcription is retracted [e̠] or centralised [ë], is transcribed broadly as [ə] in all relevant words by the Survey's fieldworker. Hirst's (1906) transcriptions of the vowel in Westmorland indicate a relatively peripheral off-glide similar to that found in Dent; again the Survey records show [ə]. However, northwestern English dialects seem to be peculiar in having a relatively front non-narrowing glide in MEAT. Detailed descriptions of other northern dialects show that the Survey's schwa transcriptions of the centring glides in both the MEAT and MATE classes are to be interpreted outside the northwest as fully central. Fully central glides are reported for example in Yorks East Riding (Widdowson 1966), south Durham (Orton 1933), and Lancashire (Shorrocks 1980). My own observations of the equivalent vowels in south Yorks and Lincs confirm that [ə] in the transcriptions of the Survey represents a fully central off-glide here too (see also Lamprecht 1937).[5]

In the light of the modern comparative evidence, it looks very much as if the development of the non-narrowing second elements in the MEAT and MATE vowels have followed non-peripheral trajectories in most if not all of the relevant dialects. The exact degree of centralisation involved, however, appears to have varied from dialect to dialect. Possible progressions, as illustrated in Fig 4-2, include relatively peripheral (a) and relatively more central (b).

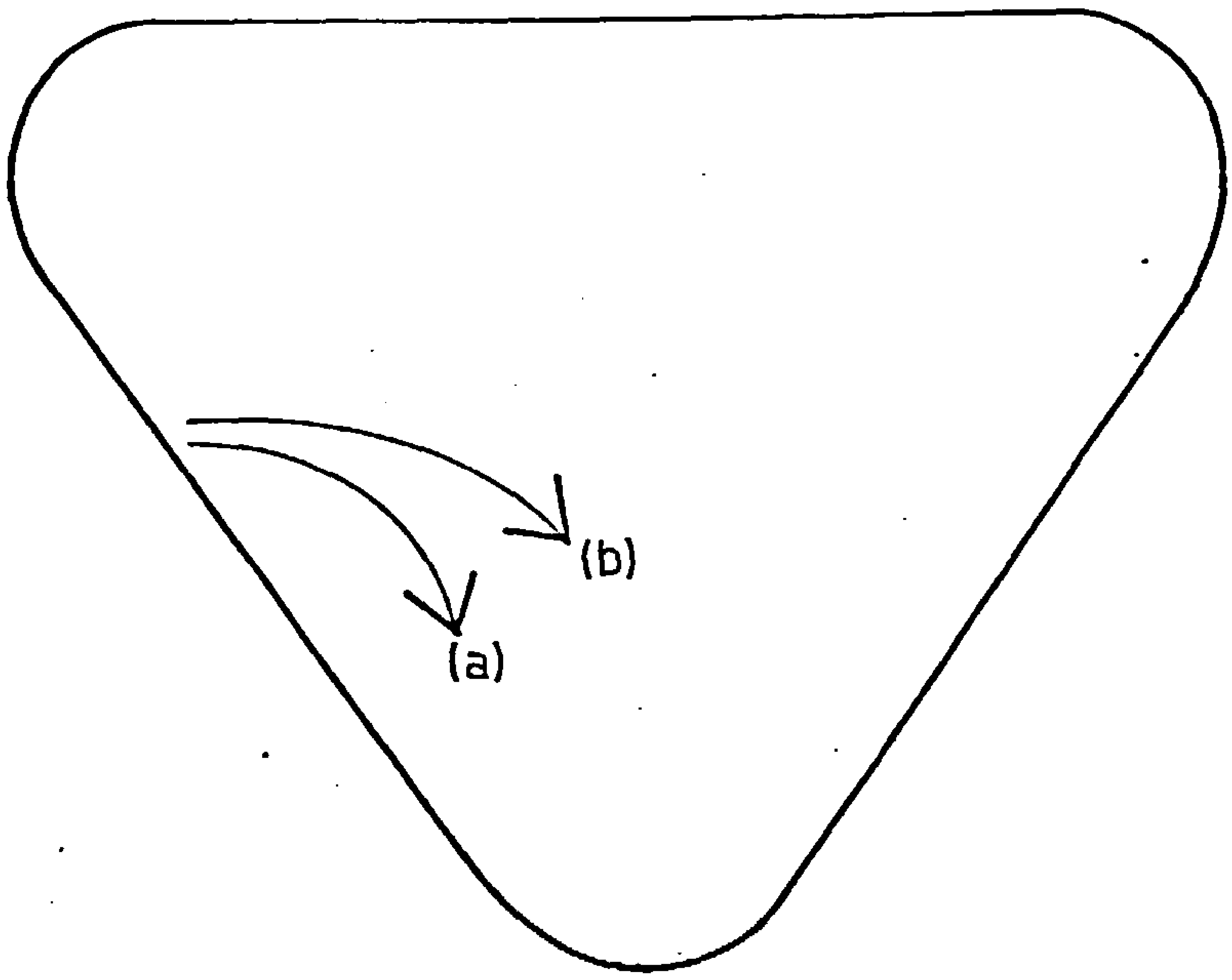


Fig 4-2. Illustrative trajectories in the development of non-narrowing off-glides.

In the reconstruction I give below, I assume that a fully central path was followed in all the dialects in Tab 4-4 with the exception of the northwestern ones, Westmorland and Yorks West Riding. In the latter cases, a relatively more (but not fully) peripheral trajectory seems to have been followed by the second morae of both the MEAT and MATE nuclei.

I offer the following as a speculative reconstruction of the development of ME /εε/ (or $\bar{e}_2$ and $\bar{e}_3$ where appropriate), /ee/, /aa/ and /ai/ in the six English type-A dialects listed in Tab 4-4. The presentation of two or more changes in the same column is not supposed to represent strict temporal simultaneity. The arrangement is only designed to reflect the importance of the relative chronology of the changes in each dialect.

(18)

Yorks West Riding

MEET ee —— ii —— əi
MEAT εε —— ee —— ië
MATE aa —— εε —— eε̈ —— iε̈ —— ia
BAIT ai —— εe —— ee

Westmorland

MEET ee —— ii
MEAT εε —— ee —— ië
MATE aa —— εε —— eε̈ —— iε̈ —— ia —— ea
BAIT ai —— εe —— ee

Lancs/south Yorks

MEET ee —— ii
STEAL ($\bar{e}_3$) e —— ee —— ei —— εi
SEAT ($\bar{e}_2$) εε —— ee —— iə
MATE aa —— εε —— ee
BAIT ai —— εe

Bucks

MEET ee —— ii
STEAL ($\bar{e}_3$) e —— ee —— ei —— εi
SEAT ($\bar{e}_2$) εε —— ee —— iə
MATE aa —— εε —— eə
BAIT ai —— εi

Lincs

MEET ee —— ii
MEAT εε —— ee —— iə
MATE aa —— εε —— εə
BAIT ai —— εe

Devon/Cornwall

MEET ee —— ii
MEAT εε —— ee —— ei —— εi
MATE aa —— εε —— ee
BAIT ai —— εi

Reconstructing the development of the MEET, MEAT, MATE and MET vowels from their ESc sources to their present-day reflexes in the five Scots type-A dialects listed in Tab 4-5 is relatively straightforward. It is reasonable to assume that the ancestors of all the dialects in question participated in the initial Great Vowel Shift raising /aa/ > /εε/ > /ee/ > /ii/. Subsequently the MATE nucleus was raised to /ee/ in most Scots dialects including east Fife and Shetland mainland/Skerries. In the last two dialects, total merger of the MATE and MEAT classes, as occurred in type-B dialects, was avoided thanks to the selective intervention of the Aitken's Law changes which affected the MEAT vowel but not that in MATE. The result in these dialects is that the MEAT : MATE opposition is maintained as a positional vs phonemic length contrast (neutralised in Aitken's Law 'long' contexts). Aitken's Law had a similar selective effect on the MEAT and MATE vowels in the dialects of northeast Angus and Shetland northern isles/Yell/Unst, but here there is no neutralisation of the contrast, since the raising of MATE from half-open position has not occurred. However, in these dialects the lowering and positional lengthening of ESc /e/ has led to a partial merger of the MET and MATE vowels in Aitken's Law 'long' environments. In Kirkcudbright, Aitken's Law has affected all the vowels in the MEET : MEAT : MATE : MET series, but MATE has not been raised beyond [ę(:)], so the MEAT : MATE distinction is preserved as a height contrast. In the following speculative reconstruction, the double vertical lines represent the intervention of the Aitken's Law length changes. Lengthening and shortening are expressed as the addition or loss respectively of a vocalic mora. A parenthesised mora indicates that length is positionally conditioned.

(19)

East Fife

MEET	ee	——	ii	——	‖	——	i(i)
MEAT	εε	——	ee	——	‖	——	e(e)
MATE	aa	——	εε	——	——	——	ee
MET	e	——	ε	——	‖	——	ɛ̧(ɛ̧)

Shetland mainland/Skerries

MEET	ee	——	ii	——	‖	——	i(i)
MEAT	εε	——	ee	——	‖	——	e(e)
MATE	aa	——	εε	——	——	——	ee
MET	e	——	ε	——	‖	——	ε(ε)

Shetland northern isles/Yell/Unst

MEET	ee	——	ii	——	‖	——	i(i)
MEAT	εε	——	ee	——	‖	——	e(e)
MATE	aa	——	εε	——	——	——	εε
MET	e	——	ε	——	‖	——	ε(ε)

Northeast Angus

MEET	ee	——	ii	——	‖	——	i(i)
MEAT	εε	——	ee	——	‖	——	e(e)
MATE	aa	——	εε	——	——	——	εε
MET	e	——	ε	——	‖	——	ε(ε)

Kirkcudbright

MEET	ee	——	ii	——	‖	——	i(i)
MEAT	εε	——	ee	——	‖	——	e(e)
MATE	aa	——	εε	——	‖	——	ę(ę)
MET	e	——	ε	——	‖	——	ɛ̧(ɛ̧)

4.7.0 Some conclusions

4.7.1 Strategies in the avoidance of merger. It is usual to view the individual changes that make up the Great Vowel Shift as participants in a covarying chain of events. For much of its history the Great Vowel Shift operated in such a way as to leave the number of oppositions in the English vowel system intact. One way of describing this is to say that the overall shift was subject to a 'no-collapse condition' (Lass 1976: 71). However, after the main stages of the shift were complete the condition appears to have been relaxed for some oppositions in some dialects. One example is the collapse of the ME /ɔ:/ : /ou/ (NO : KNOW) distinction in many dialects, including SSE. Another example is provided by the MEET : MEAT collapse which SSE appears to have borrowed from some nonstandard southern or southeast Midlands dialect. Whether the merger was, according to the particular dialect, the result of internal evolutive change or lexical transfer through borrowing, it is clear that the no-collapse constraint was broken in type-C dialects. This is also true of type-B dialects, although in this case it was a collapse of the MEAT and MATE classes that was permitted to occur.

The type-A dialects I have been discussing in this chapter show the results of the no-collapse condition having continued to operate while the MEET : MEAT : MATE series was being reduced to a two-way contrast in other dialects. There has clearly been no unified response to the condition, but it is possible to recognise two basic types whose distribution closely follows the typological division between Scots and English dialects. In Scots type-A dialects the MEAT : MATE opposition has been maintained partly through the development of new length contrasts which result from the intervention of Aitken's Law. The response in all of the English type-A dialects looked at has been some kind of diphthongisation in either the MEAT or MATE classes or both. The diphthongisation of these vowels appears to have been similar in function to that which affected ME /i:/ (BITE) and, except in northern British dialects, ME /u:/ (BOUT) earlier in the history of the Great Vowel Shift. The effect has been to deflect the vowels in question out of the path of raising monophthongs. In a sense, however, the Scots development of new length contrasts has also produced a sort of <u>Ablenkung</u>. The selective effect of Aitken's Law in certain dialects whereby MATE has retained phonemic length while MEET and MEAT have lost theirs has created new vocalic subsystems between which deflection can take place.

The strategies adopted by dialects of English in the face of a threatened MEAT : MATE or MEAT : MEET merger can be summarised as follows:

(20)

(a) <u>Null strategy</u>. Do nothing: allow the merger of MEAT and MATE (type-B dialects) or of MEAT and MEET (type-C dialects) to take place.

(b) <u>Diphthongisation</u> 1. Develop a narrowing diphthong in MEAT.

(c) <u>Diphthongisation</u> 2. Develop contrasting non-narrowing diphthongs in MEAT and MATE.

(d) <u>Monophthongal chain shift</u>. Instigate a covarying chain of raising monophthongs, so that the relative historical heights in the MEET : MEAT : MATE series are preserved.

(e) <u>Length contrast</u>. Develop a new quantity distinction between MEAT and MATE.

(f) <u>Peripherality contrast</u>. Develop a difference in peripherality between the MEAT and MATE vowels.

Each of the type-A dialects investigated in 4.4 and 4.6 has implemented at least one of the strategies in (20b) to (20f). The English dialects in question have adopted either (20b) or (20c) or both. The Scots dialects have all adopted (20d); all except one (Kirkcudbright) have adopted (20e). Option (20f) appears to have been taken up by only one dialect (northeast Angus).

The strategies represented in (20b) to (20f) are not one-off responses to an isolated case of no-collapse. All can be seen to have been at work at different times and in different parts of the English vowel system (to say nothing of other languages). I have already mentioned how the development of closing diphthongal reflexes (strategy (20b)) in ME /i:/ and /u:/ prevented their merger with raising ME /e:/ and /o:/. The raising of 'tense /æh/' (BAD) and 'tense /ɔh/' (LOSS) to high position in New York City has not produced merger with the high vowels in BEAD and LOOSE, since the originally nonhigh vowels have developed non-narrowing second morae, another case of strategy (20c) (Labov, Yaeger & Steiner 1972: ch 3). In some English dialects where the opposition between ME $\bar{e}_2$ (SEAT) and $\bar{e}_3$ (STEAL) has been preserved through a combination of strategies (20b) and (20c), parallel developments have taken place at the back of the vowel system to prevent a merger of ME $\bar{o}_2$ in LOAF (mostly from OE /ɑ:/) and ME $\bar{o}_3$ in COAL (from OE short /o/ lengthened) (see Luick 1921: 596ff; Wakelin 1977: 89). Thus in south Yorks, for instance, we have the symmetrical oppositions /iə/ vs /ɛi/ (SEAT vs STEAL) and /uə/ vs /ɔi/ (LOAF vs COAL). Option (20d) is of course the classic strategy of chain-shifting that has been observed to operate during global changes in phonological subsystems, e.g. the Great Vowel Shift raising chains /a:/ > /ɛ:/ > /e:/ > /i:/ and /ɔ:/ > /o:/ > /u:/ (see especially Luick 1921 and Martinet 1955). Differences in peripherality (strategy (20f)) are reportedly responsible for maintaining oppositions in the cases of falsely reported merger discussed by Labov, Yaeger & Steiner, e.g. SAUCE : SOURCE in New York City, FULL : FOOL in Albuquerque, HOCK : HAWK in Pennsylvania, etc. (1972: ch 6).

In some Scots dialects, the fact that Aitken's Law has only been partly implemented has produced new length distinctions which preserve historical vocalic oppositions along similar lines to MEAT : MATE (strategy (20e)). For example, the ESc /a/ : /au/ opposition (SAT : SAUT[6]), which is completely merged in some modern dialects (e.g. central eastern Berwickshire (Wettstein 1942: 37) and Kirkcudbright (Catford 1957)), is preserved as a partial length contrast in some others. Generally speaking in the latter dialects, the opposition is maintained as long SAUT vs short SAT in Aitken's Law 'short' environments but suspended under a long vowel in 'long' environments. Thus in Aberdeenshire we find [sɑt] _sat_ vs [sɑ:t] _salt_ but [fɑ:r] _far_ = _whaur_ (standard _where_) (Dieth 1932: 29-34). Similar situations are reported in Barrhill and Kirriemuir by Aitken (1981).

4.7.2 _Further thoughts on MEAT in SSE_. We may now return to some of the questions raised in 4.2 about the fate of ME /ɛ:/ in SSE and see what light the comparative evidence of present-day nonstandard dialects throws on them. It seems pretty clear that the merger of ME /e:/ and /ɛ:/ in SSE was accomplished through the lexical transfer of MEAT items into the MEET class rather than through internal evolutive change. The existence of MEAT-class items with mid and high vocalic alternants in the sixteenth and seventeenth centuries clearly indicates the lexically gradual nature of this change. In today's type-A dialects we have directly observable evidence of how this lexical transfer might have proceeded. In 3.5.4 I examined the progress of the MEET : MEAT merger in present-day BV and showed how over the past century more and more MEAT items, after passing through a stage of alternation between a high and a mid vowel, have become categorically assigned to the MEET class. The indications are that this is also happening in the British type-A dialects discussed in the last section. As an example, we may look at the vowels in fifteen MEAT items recorded by the Survey of English Dialects in eleven Devon localities (Tab 4-7). The reflex of ME /ɛ:/ in the majority of instances is /ɛi/, distinct from Modern /i:/ in MEET and /e:/ in MATE (see Tab 4-4). However, it is evident that for some speakers some MEAT items either variably or categorically contain /i:/, presumably a borrowing from standard dialects. Certain words have been subject to this transfer more than others (see especially <u>team</u>, <u>east</u>, <u>meal</u>, <u>sheaf</u>), providing clear evidence of lexical diffusion. (There are also signs of a sporadic MEAT : MATE merger: witness the odd occurrence of /e:/ (the regular development of ME /a:/ in Devon) in MEAT items.)

The dialect evidence presented in the last section also casts light on the issue of the alleged MEAT : MATE merger in SSE. As we saw in 4.2, the evidence of puns, rhymes and occasional spellings points to a certain amount of confusion between the two classes in the sixteenth and seventeenth centuries, although most of the careful orthoepists of the time describe them as remaining distinct. On the basis of falsely reported mergers in the present day, Labov suggests that the confusion arose from the fact that the two vowels approximated one another very closely in phonetic space. The contrast between them, he contends, was maintained as a difference in peripherality (Labov 1975; Labov & Nunberg 1972). The survey of type-A dialects undertaken in 4.4 and 4.6 reveals that a possibly similar difference (strategy (20f)) is one of the factors that distinguishes the MEAT and MATE vowels in at least one modern dialect, northeast Angus (see Tab 4-5). For several reasons, however, this case cannot be considered a direct parallel to sixteenth-century SSE. These include the fact that there

Tab 4-7. Vowels in fifteen MEAT items in eleven Devon localities (based on material from Orton & Wakelin 1967).

Word	SED ref	Locality 1	2	3	4	5	6	7	8	9	10	11
beans	V. 7.8.	ɩə	ɛɩ	ɛɩ	ɛ:	ɩə	ɛɩ	ɛɩ	i:	e:	e:	ɛɩ
grease	I.11.4.	e:	ɛɩ	ɛɩ	ɛɩ	aɩ	ɛɩ	e:	e:	e:	e:	ɛɩ
tea	VII. 8.3.	ɛɩ	ɛɩ	ɛɩ	ɛɩ	e:	ɛɩ/e:	ɛɩ	ɛɩ/e:	e:	e:	e:
team	I. 6.1.	i:	i:	i:	i:	i:	i:	e:	i:	i:	i:	i:
speaks	VI. 5.5.	ɛɩ	ɛɩ	ɛɩ	ɛɩ	e:	ɛɩ	ɛɩ	ɛɩ	e:	eɩ	ɛɩ
eat	VI. 5.11.	ɛɩ/e:	ɛɩ	ɛɩ/i:	i:	ɛɩ/i:	ɛɩ	ɛɩ	ɛɩ	ɛɩ/i:	ɛɩ	ɛɩ
pea	V. 7.13.	ɛɩ	ɛɩ	ɛɩ	ɛɩ	ɛɩ	ɛɩ	ɛɩ	e:	e:	e:	ɛɩ
peas	V. 7.13.	ɛɩ	ɛɩ	ɛɩ	ɛɩ		ɛɩ	ɛɩ	e:	e:	e:	ɛɩ
east	VII. 6.25.	i:	i:	i:	ɛɩ	i:	i:	i:	i:	i:	i:	i:
meat	V. 8.3.	ɛɩ	ɛɩ	ɛɩ	ɛɩ	i:	ɛɩ/e:	ɛɩ	i:	e:/i:	e:	ɛɩ
meal	V. 6.1.	i:	i:	i:	i:	i:	i:	i:	i:	i:	e:	i:
break	IX. 3.5.	ɛɩ/e:	ɛɩ	ɛɩ	ɛɩ	e:	ɛɩ/e:	ɛɩ	e:	ɛɩ	e:	ɛɩ
drain	IV. 1.9.	ɛɩ/e:	aɩ	ɛɩ	ɛɩ	ɛɩ	ɛɩ	ɛɩ	ɛɩ	ɛɩ	ɛɩ	ɛɩ
fleas	IV. 8.4.	i:	ɛɩ	ɛɩ	ɛɩ	ɛɩ	ɛɩ	e:	i:	i:	e:	ɛɩ
sheaf	II. 6.3.	i:	i:	i:	i:	i:	i:	i:	i:	i:	i:	i:

is no question of a reported merger of MEAT and MATE in northeast Angus, since the distinction is not only maintained as a peripherality difference but also as a length and height contrast. Furthermore, in view of the geographical distance of Angus from London, it seems only a remote possibility that the northern Scots dialect should display a development of ESc/ME /ɛ:/ which is identical to earlier SSE but not shared with any geographically intermediate dialect.

As we have seen, the development of a peripherality contrast is but one of at least five strategies that have been employed to maintain the MEAT : MATE distinction in modern dialects. Of the remaining four, the two types of diphthongisation (strategies (20b) and (20c)) seem the most likely to be relevant to the question of the distinction in sixteenth-century SSE, since they are restricted to English dialects that are spoken in areas relatively close to London (close in relation to Scots, that is). The development of a narrowing diphthong /ei/ or /ɛi/ in the MATE class in SSE is quite late. It does not seem to have established itself much before the late eighteenth or early nineteenth centuries (Batchelor 1809 is the first to give a definite account of it), which is much too late for it to have played any part in maintaining the MEAT : MATE distinction. There is no trace of non-narrowing diphthongal reflexes of ME /ɛ:/ or /a:/ in modern RP (except as the late development of vocalised postvocalic /r/, e.g. /fɛə/ fare), which might suggest that strategy (20c) was never implemented in SSE to keep the MEAT and MATE vowels distinct. However, this type of diphthong was known to writers on SSE in the seventeenth century. This is generally considered by modern authorities to have been a provincialism that never took root in SSE (Wyld 1920: 172; Luick 1921: 585; Dobson 1968: 603). Certainly Smith (1568) and Gil (1619) describe the centring diphthongs in both MEAT and MATE as typically northern pronunciations (see Dobson 1968: 603, 625). However, later reports of its occurrence do not necessarily indicate that this feature was a regionalism. Mason (1622), Wallis (1653) and Newton (1660) all show a centring diphthong in MEAT (see Luick 1921: 589). The most significant report of this type of pronunciation is that of Cooper (1685) who is generally regarded as the most reliable phonetician of his century. Cooper, who clearly differentiates the MEAT and MATE classes, gives an explicit account of a non-narrowing diphthongal reflex of ME /a:/ which he describes as consisting of 'e lingual' (= [ɛ]) followed by 'u gutteral' (= [ə]) (see Dobson 1968: 603; Wolfe 1972: 92). His description of the vowel in MEAT indicates a long mid monophthong, probably [e:] according to Dobson (1968: 621). Given Cooper's Hertfordshire background, it is significant that his /ɛə/ : /e:/ contrast in MATE : MEAT is quite similar to the /eə/ : /ɛi/ contrast in present-day neighbouring Buckinghamshire (see Tab 4-4). The development of Cooper's /e:/ into a closing diphthong /ɛi/ seems quite plausible in view of the recent tendency among Home Counties dialects to develop narrowing off-glides in historically mid long monophthongs (cf. RP /o:/ > /əʊ/; /e:/ > /eɪ/).

It seems to me that some scholars of the history of English have been rather hasty in their dismissal of Cooper's pronunciation of the MATE vowel as a mere provincialism which has no significance for the development of SSE. This is especially surprising, since he is otherwise regarded as by far the best chronicler of the standard dialect in the seventeenth century. It is of course quite probable that he was describing a pronunciation that had a background in the nonstandard dialects of the Home Counties, but in view of the considerable influence that these exerted on the development of SSE it is also quite likely that the non-narrowing diphthong was better established in the standard than it is generally given credit for. Despite the fact that this pronunciation has not survived in RP, it seems quite plausible to suggest that the diphthongisation strategy (20c) was at least available in seventeenth-century SSE as a means of maintaining the MEAT : MATE distinction.

4.7.3 Another look at MEAT in BV. I now turn to the question of whether the comparative evidence adduced in 4.4 and 4.6 has anything to contribute to our understanding of how the MEAT vowel developed in BV and its source dialects. As I demonstrated in 4.3, it is possible to recognise typically distinct realisations of the MATE and vernacular MEAT vowels in BV despite the fact that they display variable overlap. It may be that the overlap is symptomatic of an incipient merger of the two vowels, in which case basic BV is shifting from a type-A dialect to type B. However, the lexically gradual transfer of MEAT items into the standard MEET class may, if completed, short-circuit this shift and reclassify BV as a type-C dialect with a pattern of distribution in the MEET : MEAT : MATE series identical to SSE (see (3)). For the moment, however, it is still possible to say that the MATE vowel in BV is typically [ɩə], while that in the vernacular MEAT class is typically [ẹ(ə)]. The reflex of ME /a:/ in BV is therefore higher than that of ME /ɛ:/. What light, if any, can the reconstruction of the development of these vowels in British type-A dialects throw on this problem of 'leapfrogging' in BV and its source dialects?

Given BV's mixed heritage, it is difficult to determine whether the bypassing of MEAT by MATE (presumably in its ancestor dialects) was achieved through the typically English strategy of diphthongisation or through the typologically distinct Scots development of new length contrasts. There is nothing in the BV MEAT : MATE opposition to parallel the length contrasts that are found in most of the Scots type-A dialects; both vowels are subject to the same conditions that govern length in /əi, əʉ/ (outlined in 1.4.1). It is of course possible that a length distinction, having operated while the exchange of positions was in progress, was subsequently lost. However, there is no trace of such a distinction in the Scots hinterland dialects of BV. There is nothing in Gregg's detailed descriptions of CUS to suggest that it is anything other than a mixed type B/C dialect, in which MEAT items have been absorbed into either the MEET or MATE sets.

The diphthongal reflexes of the MEAT and MATE vowels in BV may suggest that the preservation of the contrast has its origins in the more English-influenced dialects of northern HE. The leapfrogging of the two vowels might then be explained in terms similar to those schematised in Fig 4-1. In other words, it might be possible to reconstruct a sequence of changes in the ancestor dialects of BV, in which the first mora of the MATE nucleus bypassed that of MEAT while the distinction was maintained as a quality difference in the second morae. In this case, the quality difference appears to have taken the form of a peripherality contrast.

One obvious place to seek support for this reconstruction is in the present-day English-influenced dialects of Ulster, particularly SUE. I have attempted to glean information on the fate of ME /ɛ:/ in

SUE by consulting the records of the Tape-Recorded Survey of Hiberno-English. Unfortunately the fieldworkers on the Survey appear to have come up against much the same problem as was encountered in the Belfast sociolinguistic projects. Due to the socially submerged nature of the vernacular mid vowel in the MEAT class, it was the standard high alternant (merged with MEET) that was elicited most often. The relatively few examples of the nonstandard alternant that did surface do not provide a sound enough basis for firm conclusions. Impressionistically, however, it was noted that some SUE speakers tended to use a half-open monophthongal pronunciation for MEAT but a centring diphthong with a half-close first element for MATE. (One speaker from south Armagh consistently pronounced <u>treaty</u> (MEAT) as [ˈt̠ɾɛːɾ̥ɪ] but <u>later</u> (MATE) as [ˈleəɾ̥əʴ].) Thus it seems that at least some types of SUE have a potential MEAT : MATE distinction realised as [ɛː] vs [eə]. This is, broadly speaking, paralleled in BV by a similar height contrast (typically [ę(ə)] vs [ɪə]) as well as by a statistically higher incidence of a non-narrowing second element in MATE than in MEAT (see Tab 4-3). It will be noted that traces of a half-open monophthongal pronunciation of MEAT similar to that in SUE still survive in BV (see Tab 4-1).

In the light of this comparative evidence, it might be possible to reconstruct a sequence of changes in the relevant English source dialects of BV whereby the vowel in MATE, through the diphthongisation strategy (20c), bypassed the MEAT nucleus which initially remained monophthongal. The variable diphthongisation of MEAT which is now evident in BV is presumably a later development which did not interfere with the bypassing process. However, in the absence of more detailed evidence, it would be dishonest to claim that these remarks on the history of ME /ɛː/ in northern HE were anything more than speculative.

One puzzling aspect of the MEAT : MATE issue in BV that I have not dealt with in detail concerns the finding that speakers potentially maintain the distinction in their production without apparently being able to perceive it (as the false reports of merger suggest). This is a problem I turn my attention to in the next chapter.

Footnotes to Chapter Four

1. The terms strategy and no-collapse constraint as I use them in this chapter are not intended to imply a functional view of phonological change. In other words, strategies are not to be interpreted here as goal-directed changes which precede some final cause. Rather they are simply developments which can be antecedently recognised as leading to a 'de facto terminus' (the non-occurrence of merger). (See Woodfield 1976; Lass 1980a: 80ff; and the discussion in 2.5).

2. There appears to be massive irregularity in the ea class when r follows, e.g. fear, dear, hear, clear, near, year, tear ('lacrima') with a high nucleus vs bear, pear, wear, swear, tear ('rip') with a mid nucleus. At first sight the mid-vowel words might be taken as residual evidence of a merger of ME /ɛ:/ with /a:/ (since they now belong to the same class as fare, bare, care, etc.). However, as Jespersen points out, the mid-vowel ea items contain the reflex of OE short /e/ lengthened in open syllables which before /r/ followed a separate development from /ɛ:/ (1909: 339). The environment of following /r/ is a complicating factor in the history of ME /ɛ:/ which has received full treatment elsewhere in the literature (see especially Kökeritz 1953: 204ff; Dobson 1968: 636ff; Samuels 1972: 142ff; Labov & Nunberg 1972). I ignore it in the reconstruction of the vowel's isolative development undertaken here.

3. An example of a MEAT : MATE pun in HE: A trainee nurse, newly arrived at a Belfast hospital, is being shown around the halls of residence by the warden. Nurse: And what about meals? Warden: All men must be out of the building by eleven o'clock.

4. Further evidence that Labov is unaware of the operation of Aitken's Law in Scots comes from his transcription of head in Glasgow as [hi:d] (1981: 297). Since following /d/ is a 'short' environment in Aitken's Law, this word can only be [hid] in broad Scots. (Labov correctly notes the failure in Scots of the SSE shortening process whereby MEAT items were sporadically reassigned to the MET class, cf. head, sweat, dead with short /ɛ/ in SSE and related dialects. These items remained in the MEAT class in Scots and subsequently participated in the irregular transfer of ESc /ɛ:/ items into the MEET class (in type-C or type-B/C dialects).)

5. I am grateful to John Widdowson of the Centre for English Cultural Tradition and Language at the University of Sheffield for granting me access to tape-recordings of south Yorks and Lincs speech.

6. The SAUT vowel in Scots is the reflex of ESc [auɫ] < /al/ through vocalisation of the lateral.

Chapter Five

ON IMPLEMENTING MERGER

The theme of this chapter is in many ways complementary to that of the last one. There I dealt with strategies of merger-avoidance; here I examine ways in which merger may be achieved. I return to the issues of lexical transfer and gradual sound change discussed at length in Chapter 3 and suggest ways in which these play a role in the development of phonological mergers. I argue that it is possible to distinguish between merger-by-transfer and merger-by-drift. The collapse of a phonological contrast may in some instances result from the amalgamation of lexical sets through the strategy of transfer. In other instances, merger is the outcome of two phonemes coalescing in phonetic space through the drifting of their associated local frequency maxima. The two types of merger may be quite difficult to differentiate after they have gone to completion, but studies of synchronic linguistic variation indicate that each has its own distinctive characteristics which are clearly recognisable while it is in progress. Merger-by-transfer typically proceeds via sociolinguistically constrained alternation between phonetically discrete variants, with one variant eventually replacing the other in all relevant lexemes. Merger-by-drift appears to be largely regular (i.e. free of lexical conditioning) and to be preceded by a stage during which the two merging phonemes display variable overlap.

I return to the problem of falsely reported mergers, some of which can be shown to stem from the close approximation of phonemes in phonetic space, others of which reflect variable phonemic overlap. Finally I address myself briefly to some of the theoretical and methodological issues raised by the inaccurate reporting of mergers by native speakers.

5.1 Adaptive and evolutive mergers

In the last chapter I focused attention on some of the strategies that have been implemented in the avoidance of merger. In this chapter I wish to look at the other side of the coin: at cases where the response to the threatened collapse of phonological distinctions has been the null-strategy. It is not my concern to explain why merger should be avoided in one set of circumstances but allowed to happen in another. Rather the question I address myself to here is this: given that merger is attested, what are the various ways in which it may come about? I will attempt an answer by drawing on the distinction between adaptive and internal evolutive change outlined in 3.1. In that section I argued that one of the primary mechanisms of adaptive phonological change is the lexically gradual strategy of transfer whereby individual words are reallocated from one discrete phoneme class to another. On the other hand, I sought to adduce evidence in support of the view that internal evolutive change characteristically proceeds in a phonetically gradual fashion.

Applying this distinction to changes involving the collapse of phonological contrasts, we might expect to find cases of phonetically abrupt but lexically gradual merger as well as cases of phonetically gradual merger. In other words, it should be possible to distinguish merger-by-transfer from merger-by-drift (cf. Trudgill & Foxcroft 1978 on the notions transfer and approximation in vocalic mergers). As an example of merger-by-transfer we may cite the collapse of the MEAT : MEET distinction in SSE already discussed in detail in the last chapter. Here, as we saw, the historical contrast between ME /ɛ:/ and /e:/ was lost through the progressive reassignment of MEAT items into the MEET class. Merger-by-drift obviously entails subphonemic shifting; and since the orthographic record necessarily operates with gross phonetic categories, it is often impossible to reconstruct the phonetic details of the changes involved on the basis of documentary evidence alone. Nevertheless, strong evidence for this type of merger comes from studies of sound change in progress, some of which I discuss below. These indicate that the final stages of merger-by-drift involve a certain amount of overlap between the historically distinct segments that are threatened with collapse. In the next sections, with the help of a few illustrative cases, I will discuss each of the merger-types in turn and suggest ways in which they might be modelled in terms of phonological rules and representations.

5.2.0 Merger-by-transfer

5.2.1 Lexical and phonemic mergers. The term merger as I have been using it can be considered from two points of view. Firstly, in its traditional sense, merger is a phonological event, in that it involves the collapse of phonemic distinctions (see for example Hoenigswald 1960, Jakobson 1962). On the other hand, mergers may be regarded as taking place on a lexical dimension, in that they result in the amalgamation of word-classes. The difference between these two senses is not a trivial one. All phonological mergers of course entail the coalescence of lexical sets, but the converse does not necessarily hold. That is, not all lexical mergers entail phonological restructuring. (More on this below.) For the purposes of schematising the different types of merger, I will use lower-case letters to represent phonemes and capitals to represent lexical sets.

If a lexical merger involves a reduction in the number of contrasts in the phonological system, the process of transfer may be represented schematically as in Fig 5-1. The ellipses in Fig 5-1 represent the error/probability contours associated with the realisation of phonemes x and y in phonetic space. Items in lexical set A, which initially contain the phoneme x (stage I), are transferred into the phonetically discrete phoneme class y where they become amalgamated with lexical set B (stage III). All detailed reports of this type of phonetically abrupt merger indicate that it proceeds in a lexically gradual fashion. That is, it passes through a stage during which the word-class that is subject to the transfer is split into items that have undergone the transfer and those that have not yet done so (subsets A_i and A_j at stage II). (Individual items typically pass through a stage of alternation between the two phonemes before being categorically assigned to the new class - see 3.1.) The completion of the transfer process coincides with the disappearance of x from the phonological system.

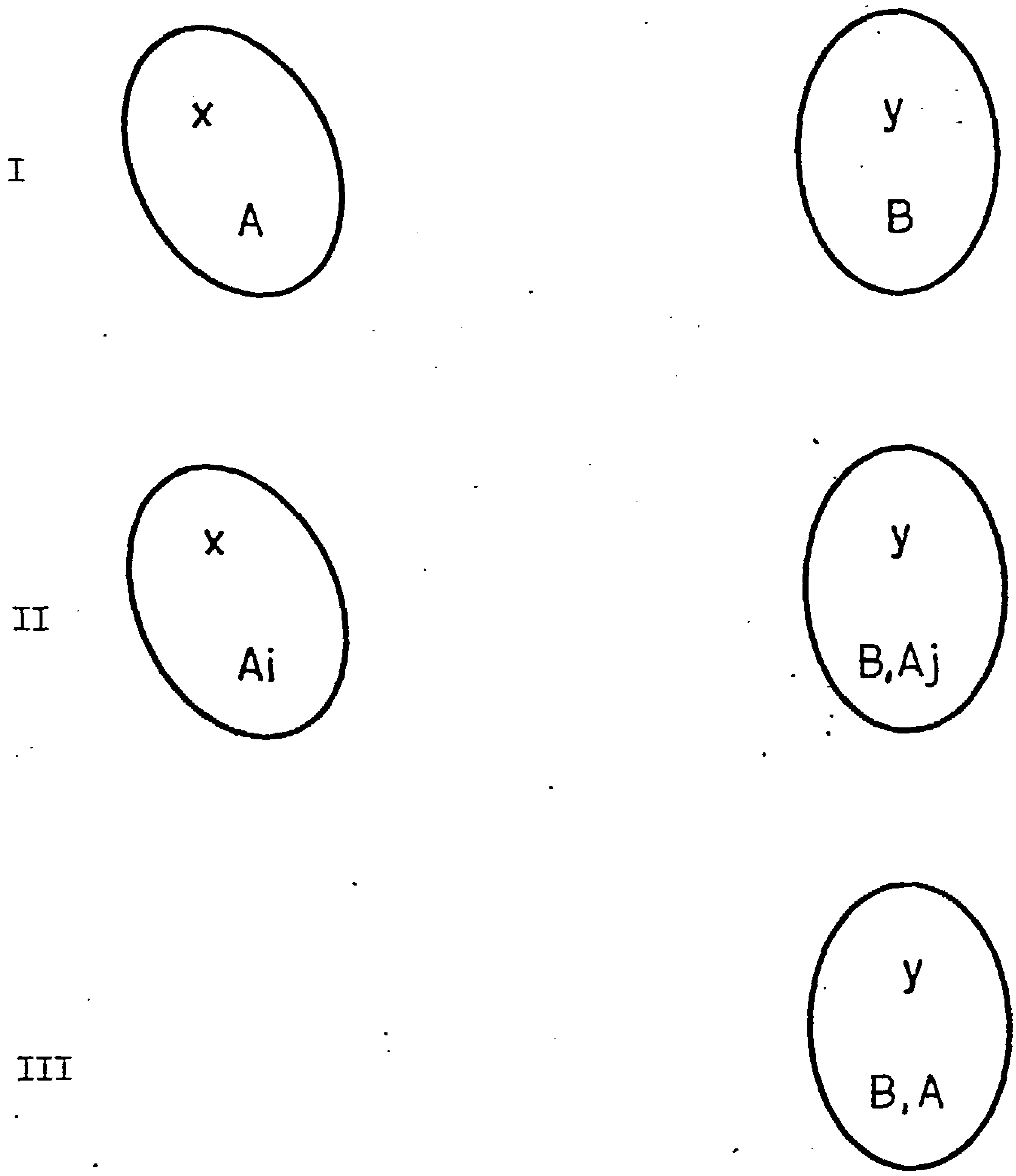


Fig 5-1. Merger-by-transfer.

As an example of phonological merger-by-transfer we may cite the loss of south Yorks vernacular /εi/ (mostly < ME $\bar{e}_3$) which is merged with /i:/ in the standardised speech of the area:[1]

(1)

s. Yorks vernacular			standardised s. Yorks	
MEET	i:	→	i:	MEET = MEAT
MEAT	εi	↗		

Lexical transfer, however, does not always necessarily imply the collapse of phonemic distinctions. In other words, a lexical merger may take place without an accompanying phonological merger. There are two conditions under which this state of affairs may arise. Firstly and trivially, the transfer of items from lexical set A to set B may not be completed, so that a residue of A items retains phoneme *x* (as at stage II in Fig 5-1). Secondly, there may be a complete transfer of A items out of the *x* phoneme class while *x* receives a fresh input of items from another lexical set C (schematised in Fig 5-2). In this case, the lexical merger of sets A and B produces a change in the lexical incidence of the phonemes *x* and *y* but does not affect the systemic opposition between them. This pattern of lexical merger appears to be typical of change from above where a massive reorganisation of nonstandard phonemic distribution takes place without reducing the number of phonemic contrasts involved (see 3.5). For example, in the shift from vernacular Scots to standardised Scottish English (including from CUS to SUS) a large-scale redistribution of the vowels /əʉ, o, ʉ/ occurs without accompanying phonological restructuring. The vernacular /əʉ/ class (*grow*, *four*, *folk*, etc.) becomes absorbed into the /o/ class (*go*, *rose*, *before*, etc.) in standardised usage; but /əʉ/ is retained in the standard system as a result of receiving an allocation of items from the vernacular /ʉ/ set (*cow*, *loud*, *drown*, etc.).

5.2.2 *Modelling lexical transfer*. The problem of modelling merger-by-transfer is related to the more general issue of how sociolinguistically constrained alternation between phonemes is to be represented in phonological descriptions (as opposed to the morphologically constrained

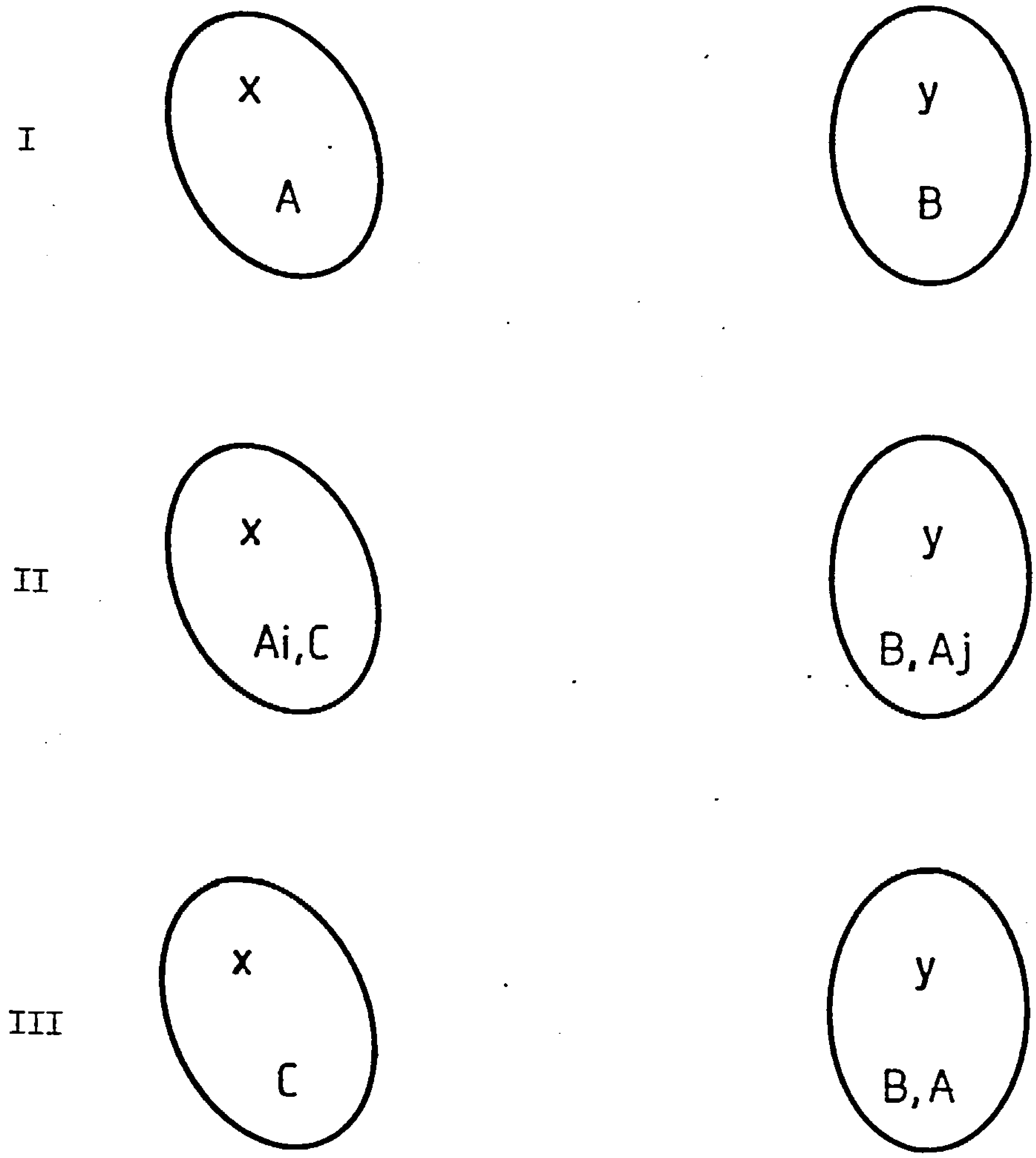


Fig 5-2. Lexical transfer without loss of contrast.

alternations that are associated with morphophonemic relations).[2] In a sense, the term lexical transfer already anticipates my position on this question, namely that innovations involving phonetically discrete alternations of the type under discussion here are not phonological changes at all but merely changes in the lexical incidence of phonemic units (except insofar as they may eventually lead to phonological restructuring). I argue for this interpretation below. However, at least two other ways of modelling sociolinguistically conditioned phonemic alternation can be contemplated. We may discuss the three alternatives by examining how each might be applied to one particular example: the alternation between labial and dental consonants in nineteenth-century Czech dialects (Andersen 1973).

Up until the late nineteenth century some varieties of Czech spoken in northeastern Bohemia (referred to by Andersen as the 'Teták' dialects) differed from the surrounding ('Peták') dialects in the distribution of the reflexes of historical sharp and plain diffuse consonants. Taking voiceless plosives as representative of the various consonant-types involved, we can summarise the historical background to the distributional differences as follows ([p'] denotes a sharp labial; plain labials are unmarked):

(2)

<table>
<tr><th>Earlier Czech</th><th>Peták</th><th>Teták</th></tr>
<tr><td>t</td><td>t</td><td rowspan="2">{ t }</td></tr>
<tr><td>p'</td><td rowspan="2">{ p }</td></tr>
<tr><td>p</td><td>p</td></tr>
</table>

The asymmetrical correspondences between labials and dentals in the Peták and Teták dialects are the result of two different patterns of merger. In Peták dialects historical sharp labials are merged with plain labials; in Teták dialects they are merged with dentals. By the nineteenth century the Teták pattern of distribution was in the process of being abandoned in favour of the Peták pattern. The distributional change passed through a period when labials and dentals existed as variants in an alternating set of items which corresponded to the historical sharp labial class. Thus in nineteenth-century Teták dialects the labial vs dental opposition was distributed over three lexical sets,

(3)

(a)	(b)	(c)
t	t ~ p	p

one categorically containing dentals (3a), one categorically containing labials (3c), and one set alternating between the two consonants (3b). In the alternating class the dental represented the conservative variant, the labial the progressive (Peták) variant. In the modern descendants of the Teták dialects the labial has almost completely replaced the old dental in this set, so that the distribution of the two consonant-types is now more or less identical to that of the Peták dialects. The state of affairs outlined in (3) is exactly parallel to the BV vocalic alternations discussed in 3.5 which were shown to be symptomatic of lexical transfer in progress. In other words, we are dealing with a classic pattern of adaptive change where an older form is progressively edged out by a newer one after a period of sociolinguistically constrained alternation.

Note that the shift from the Teták to the Peták distributional pattern in (2) involves undoing the historical merger of earlier Czech /t/ and /p'/. This involves learning to split the Teták dental class into two sets which correspond to the historical dental vs sharp labial classes but which were merely arbitrary lists of lexemes as far as nineteenth-century Teták speakers were concerned. According to Andersen, these speakers initially added an adaptive rule to their grammars, together with the necessary lexical marking, which optionally changed underlying dentals into surface labials. On the basis of this variable output, Andersen argues, a child acquiring a Teták dialect in the late nineteenth century must have formulated the phonological representation of alternating forms as follows:

> A learner whose models pronounced certain lexemes with both dentals and labials would have to [emphasis mine: JH] decide which to take as underlying consonants. It would not be difficult for him to see, however, that the doublets with labials were always acceptable to his models; so he would naturally formulate his phonology accordingly, i.e. with underlying labials and an optional adaptive rule to derive dentals (1973: 779).

There are three aspects of Andersen's model which cannot be taken as given, despite his insistence that they should be (note the emphasis on <u>have to</u> in the above quote). These are the assumptions (i) that the domain of alternation is necessarily the alternating segment (rather than the lexeme as a whole), (ii) that one alternant must be taken as basic, and (iii) that rule inversion is involved (see Vennemann 1972b). On this last point, note that the effect of the initial adaptive rule adopted by Teták spakers seeking to emulate the Peták model is the merger-reversal already mentioned, i.e. 'some dentals ——> labials'. Children subsequently learning Teták dialects, according to Andersen, restructure the phonology by taking the labial alternants as basic and inverting their parents' adaptive rule so that it becomes 'some labials ——> dentals'.

This all seems a bit elaborate to me. There is a good case to be made for describing one particular type of change in terms of rule inversion, namely the generalisation of a once distributionally restricted segment sequence to the status of an automatic condition on surface structure. The rise of 'intrusive <u>r</u>' in some English dialects provides a well-known example. In conservative RP and related dialects, historical /r/ is deleted preconsonantally or before a pause, i.e. it is preserved prevocalically (/bɑː/ <u>bar</u> vs /ˈbɑːrɪŋ/ <u>barring</u>). Thus sequences of /VrV/ (/ˈsɔːrɪŋ/ <u>soaring</u>) contrast with /VV/ (/ˈsɔːɪŋ/ <u>sawing</u>). In progressive RP and related varieties phonological /r/ appears to have been lost postvocalically in morpheme-final position. In place of the original deletion rule there is now an inverted version which regularly <u>inserts</u> [ɹ] between vowels (as long as the first is nonhigh). The insertion rule is a fully automatic condition on syllable structure, so that the historical /VrV/ vs /VV/ contrast is lost, e.g. [ˈsɔːɹɪŋ] <u>soaring</u> = <u>sawing</u>. This type of example is quite different from the Czech case discussed by Andersen. The allegedly inverted adaptive rule in Teták dialects whereby 'some labials ——> dentals' is not an automatic rule of pronunciation in the way that the 'intrusive r' rule just discussed is. Instead it is subject to severe lexical conditioning and is thus much harder to learn than a fully automatic rule. In fact it is reasonable to assume that the strategy of adapting to the Peták model (assuming of course that there is only one strategy) involves learning the dental ~ labial alternation lexeme by lexeme. It is this last point which argues strongly for viewing adaptive change as occurring along a solely lexical dimension; that is, without recourse to the elaborate device of having surface realisations derived from underlying representations by means of an adaptive process.

But to return to my first two objections to Andersen's model. Even if we accept the assumption that the domain of alternation is the alternating segment itself, the phonological shape of this segment is by no means decided for us. Andersen assumes that the more prestigious variant is eventually taken as basic and the conservative variant derived from it by means of an adaptive rule. However, even within Andersen's generative model there is room for other possible analyses. One particularly radical alternative is to treat the alternating segment (3b) as a structurally different entity to the nonalternating segments (3a) and (3c). This is simply good old-fashioned structuralist morphophonemics. The solution in fact turns out to be just as unparsimonious as Andersen's; but the point is that there is nothing in his generative model to exclude it. While the nonalternating consonants are fully specified at an underlying level for place of articulation, the alternating segment need only be partially specified. In other words, the latter would receive an 'archisegmental' representation (cf. Hooper 1975) in which the [diffuse] feature would be specified (to mark the segment as being distinct from velars) but not the [grave] feature (so that the labial vs dental distinction is not lexicalised in lexemes containing the alternating segment). The adaptive rule would then take the form of a variable rule which would fill in the value of the [grave] feature: either plus or minus depending on particular sociolinguistic constraints. This solution could logically be extended to all cases of sociolinguistically conditioned segmental alternation. For example, the alternating BV vowels discussed in 3.5 could all be given archisegmental vocalic representations which would receive their full surface realisations by means of variable rules that fill in the underlyingly unspecified body-of-tongue features.

Any model which treats sociolinguistically constrained segmental alternation in terms of underlying representations and optional synchronic processes misses the point that native speakers have to distinguish alternating from nonalternating segments on a lexeme-by-lexeme basis.

This is a relatively difficult learning task that is not at all comparable to the acquisition of completely automatic conditions on phonetic structure (such as the assimilation of voicing across segments in obstruent clusters which determines the choice between the /s/ and /z/ allomorphs of the English plural morpheme). While it seems reasonable to describe the latter in terms of rules of pronunciation, it seems to me misguided to extend the notion of rule to sociolinguistic alternations which essentially consist of large lists of irregularities.

A treatment of this problem that is at once more parsimonious and more clearly reflects the difficulty, from the speaker's point of view, of learning arbitrary lists of alternating and nonalternating forms is simply to represent the alternations as a matter of lexical 'choice' rather than synchronic 'change'. The domain of alternation, according to this view, is thus the lexeme as a whole rather than a single segment. I don't think anyone would advocate treating the variant pronunciations of the word <u>either</u> in terms of a single underlying representation containing one basic alternant and a process rule by means of which to derive the other. Speakers who sometimes use /i:/, other times /aι/ in this word presumably 'have' two alternative lexical representations of it. Sociolinguistic alternations involving large sets of lexical items, I would argue, are essentially parallel to the <u>either</u> case, albeit on a more extensive scale.

The alternation between labials and dentals in nineteenth-century Tetắk dialects of Czech or between /ʉ/ and /ɔ̈/ (<u>foot</u>, <u>put</u>, etc.) in present-day BV, then, reflects the speaker's choice between alternative lexical representations, a choice that is governed by particular sociolinguistic factors. Bearing in mind that sociolinguistic alternation of this type is often a symptom of change in progress, the transfer of individual lexemes from one phoneme class to another can be said to begin with the addition of a new lexical representation to each of the items in question. During a period of alternation the two representations exist side-by-side until the older one is eventually lost. This is essentially the model I am also assuming for merger-by-transfer. As the amalgamation of two lexical sets is underway, alternating lexemes have associated with them two lexical representations. In terms of the schema in Fig 5-1, alternating class A items each have two representations, a conservative form containing x and a progressive one containing y. By the time the lexical merger of classes A and B is complete, all A items will be represented in the lexicon as unitary forms containing y. Lexical mergers of this type, as I have already pointed out, do not necessarily lead to phonological merger. In the sort of case outlined in Fig 5-2, the loss of x from the phoneme system is avoided by a fresh input of items from a third lexical set C.

Of course there is no question of phonological restructuring if the transfer of A items into the B set does not go to completion or remains lexically selective, thus producing a split in the A class (perhaps along the lines of a historical distinction that has been lost in the adapting dialect but is preserved in prestige varieties). This is precisely what happened in the Teták dialects of Czech. Andersen's account of the adaptive change whereby some items containing dentals are transferred into the labial set assumes phonological restructuring: a switch in the underlying identity of some segments accompanied by rule inversion. In fact all that has happened is a redistribution of labial and dental phonemes across the lexicon. The reallocation of items from the dental into the labial set has not completely emptied the former since it retains items which historically contained earlier Czech dentals. The systemic opposition between the labial and dental series thus remains unaffected by the adaptive change.

5.3.0 Merger-by-drift

5.3.1 Introduction. Recognising the possibility that phonological merger may be achieved by the gradual approximation of one phoneme to another in phonetic space until the two eventually coalesce of course presupposes acceptance of the view that there is such a thing as gradual sound change. Despite the attempts of some generativists to show that all phonological change involves discrete rule change (e.g. Postal 1968, King 1969, Wolfe 1972), there is now enough evidence from studies of linguistic change in progress to indicate that at least some phonological innovations result from the drifting of local frequency maxima (Hockett 1958: ch 53; 1965). The main outlines of these findings were summarised in 3.1, and there is no need to go over them again here. What I want to do in this section is demonstrate the role that phonetic drift may play in the implementation of phonological mergers.

I begin by sketching a rough model of how vocalic merger-by-drift might proceed (see Fig 5-3). As in Fig 5-1, the ellipses in Fig 5-3 represent the probability/error contours associated with the realisation of phonemes x and y in phonetic space. At stage I the lexical sets A and B contain the phonetically discrete vowels x and y respectively. Through gradual drifting of the local frequency maximum associated with x it comes to approximate phoneme y very closely in phonetic space (stage II). Subsequently the two phonemes come to overlap (stage III). Eventually total merger is effected (stage IV) when the two vowels become identical, resulting in an amalgamation of the lexical sets A and B. The new post-merger vowel z may bear a phonetic resemblance to y, but in strict Saussurian terms it must be regarded as a different structural entity to either of its sources, since it participates in a new network of relations with other vowels in the restructured system. (The format in Fig 5-3 could equally well be amended to represent the drifting of y in the direction of x or the mutual approximation of the two vowels. The phonetic quality of z would in the first instance be similar to that of x, in the second of some intermediate value. The phonetic details are unimportant, since the phonological result is the same in all cases: a reduction by one in the number of contrasts in the vowel system.) This model needs a good deal of refinement which I will attempt to introduce below. In particular it will be necessary to incorporate the dimension of environmental constraints in order to distinguish conditioned from unconditional merger. Furthermore the concept of phonemic overlap (stage III in Fig 5-3) requires a good deal of comment. I wish to present evidence which suggests how this type of overlap might come about and how it can be seen as a precursor of phonological merger. First of all, however, it is necessary to examine the problem of falsely reported mergers which I touched on in 4.3.

5.3.2 Falsely reported mergers. It has to be said right away that, in the majority of cases, at least, reports of phonological merger by careful orthoepists and linguists must be taken at face value (see the discussion in Lass 1980b). The drastic alternative is to abandon

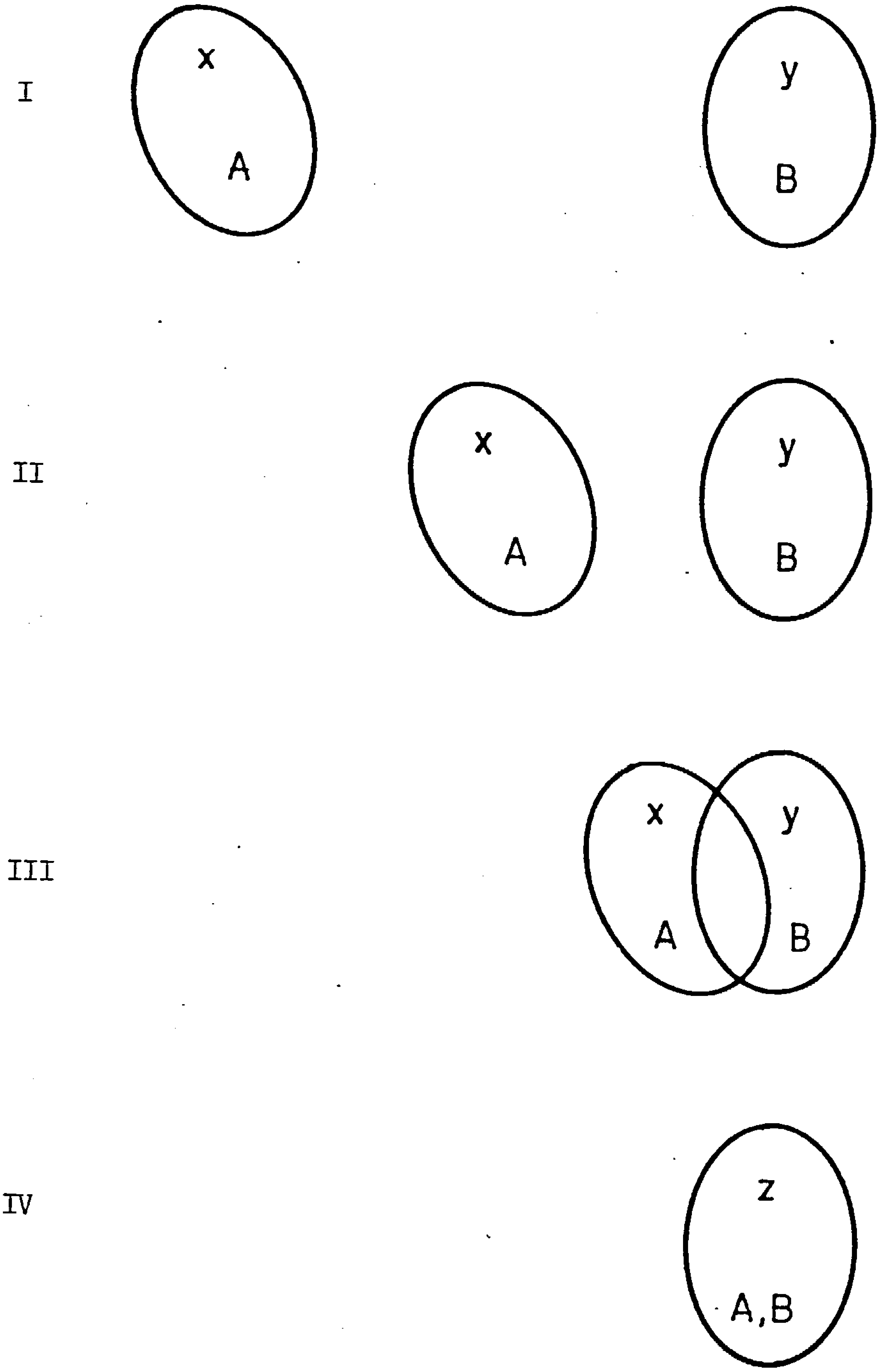


Fig 5-3. Merger-by-drift.

confidence in the value of documentary evidence to linguistic reconstruction. However, recent research has revealed that in some instances reports of merger by naïve observers must be treated with caution. Thus Labov, as we saw in 4.2, suggests that the evidence of rhymes and occasional spellings which allegedly indicate a merger of MEAT and MATE in sixteenth-century SSE must be considered inaccurate in the light of the subsequent history of these vowel-classes. Credence is lent to this suggestion by the directly observable falsely reported merger of the two classes in present-day BV (4.3). Research that has been undertaken since Labov, Yaeger & Steiner's initial discussion of the problem (1972: ch 6) reveals that inaccurate reporting of mergers may stem from two possible sources of confusion. On the one hand, two vowels may approximate one another so closely in phonetic space (stage II in Fig 5-3) that reliable discrimination between them may prove difficult. In other cases, false reports stem from the fact that two vowels overlap in some way (stage III in Fig 5-3).

Labov and his fellow researchers have discovered cases where native speakers report two vowels in their own dialect as 'the same' in minimal-pair and commutation tests but consistently and reliably keep them distinct in connected speech. The vowel-classes concerned include: SOURCE : SAUCE in New York City; HOCK : HAWK in Pennsylvania; FOOL : FULL in Albuquerque, New Mexico; BEER : BARE in Boston, Massachusetts; and LINE : LOIN in Essex (Labov, Yaeger & Steiner, 1972: ch 6; Labov 1975). Spectrographic analysis revealed that in each case the two vowels approximated one another so closely in phonetic space that native speakers either were unable to perceive them as different or perhaps felt it unnecessary to label them as different. Janson (1982) reports similar instrumentally-derived findings involving word-classes containing /e/ and /ɛ/ in the Lycksele dialect of Swedish. It has been argued that close approximations of this type were responsible for the falsely reported mergers of MEAT : MATE (Labov & Nunberg 1972; Labov 1975) and LINE : LOIN (Nunberg 1980) in the history of SSE.

Subsequent research has uncovered slightly different but related examples of falsely reported merger, where the confusion between two vowels apparently arises out of the fact that they sometimes overlap in phonetic space. Overlap in this sense is to be understood in terms of the phonological context in which the vowels occur. On the one hand, there is what Bloch (1941) terms partial phonemic overlap, where a given sound realises phoneme x in one set of phonological contexts but phoneme y in a complementary set. On the other hand, we find what Bloch refers to as complete phonemic overlap, in which successive occurrences of a given sound in phonologically identical contexts are assigned sometimes to phoneme x, sometimes to phoneme y. The synchronic status of the latter type of overlap is problematical, but its application to the diachronic development of mergers is fairly uncontroversial. Successive occurrences of the same sound may be assigned by the historical phonologist sometimes to etymological category x, sometimes to category y, where x and y represent formerly distinct but now identical segments. Recent quantitative studies have shown that this type of overlap may operate variably between pairs of vowels, e.g. BOOT : BOAT, NOSE : KNOWS, BEER : BARE in Norwich (Trudgill 1974: 115ff); and BYSSA : BUSSA (short /y/ vs /ʉ/) in southwest Norwegian (Kerswill 1980). Examples of overlap in HE that have been quantified include LINE : LOIN in west Cork (Lunny 1981a: 70ff) and DON : DAWN, MEAT : MATE in Belfast (see 3.6.5, 4.4 and Milroy & Harris 1980). Similar cases of variable phonemic overlap have been quantified on a system-wide scale in the early stages of phonological development, especially in the period up to 26 months (Winitz 1960; Lieberman 1980; Bond, Petrosino & Dean 1982).

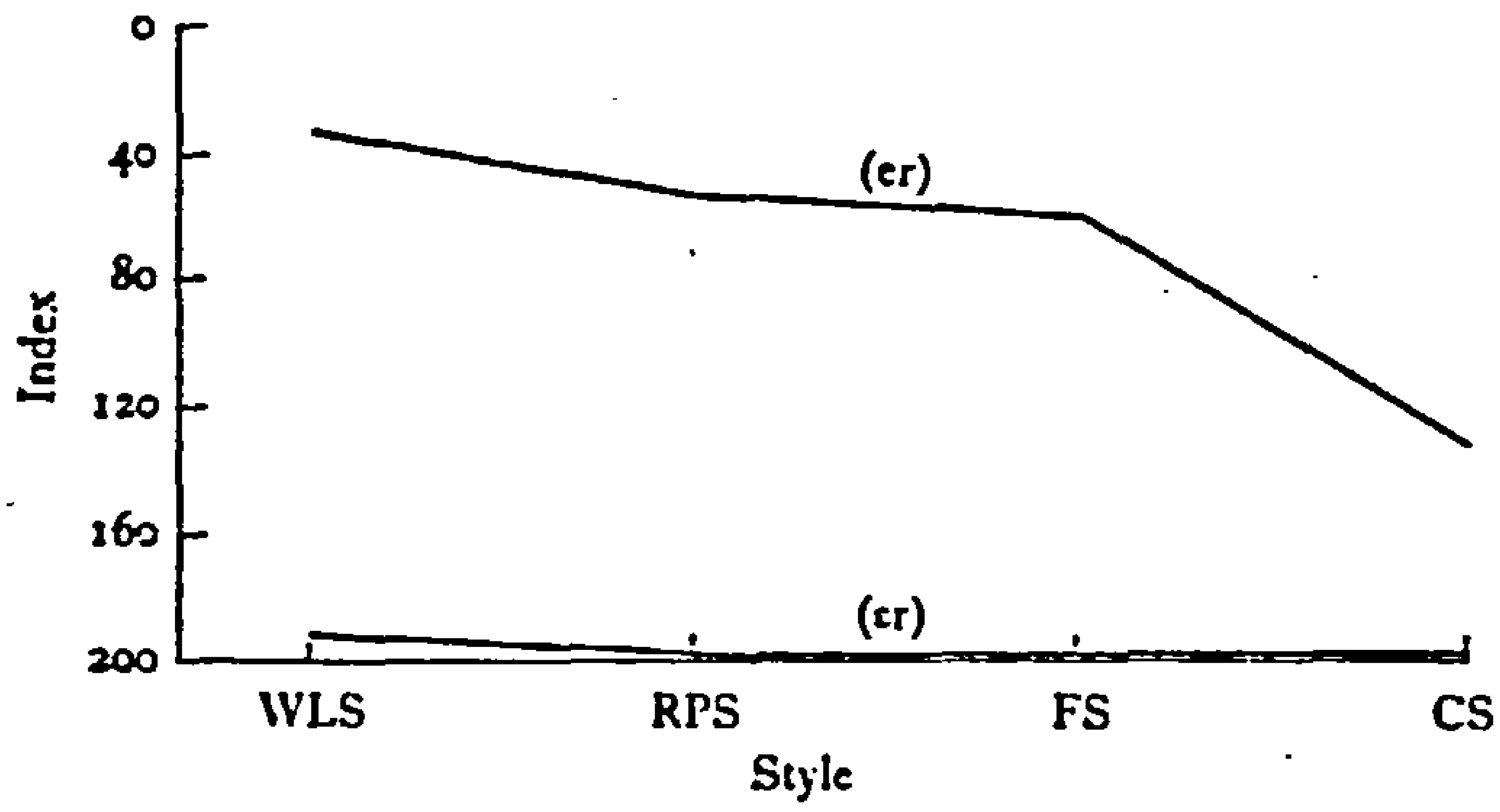
The term falsely reported merger subsumes two possible states of affairs. On the one hand, there may be no question of true merger at all. In the course of time two vowels which were once confused may become clearly separate. For example, during the falsely reported mergers of MEAT : MATE and LINE : LOIN in early SSE, the vowels in each pair apparently passed very close to one another on tangential paths, their subsequent divergent developments indicating that they never actually merged (Labov & Nunberg 1972; Labov 1975; Nunberg 1980). On the other hand, falsely claimed mergers may suggest that true merger is in progress but has not yet gone to completion. Of course when two vowels are in close phonetic approximation (stage II in Fig 5-3), we have no way of telling whether merger is about to happen. Only the subsequent history of the vowels can tell us that. However, when there is overlap (stage III in Fig 5-3) the possibility of merger in progress is to be seriously considered.[3]

I want to look in some detail at several cases of falsely claimed merger in which the inaccurate reporting apparently stems from the fact that the two vowels in each example overlap (in the sense of Bloch's complete phonemic overlap). Quantification of speakers' output in these cases reveals that the overlap is in fact variable; that is, two vowels in an allegedly merged pair are potentially distinct but are realised identically some of the time. On the face of it, the variable overlap can plausibly be assumed to indicate true merger in progress. In at least one of the cases discussed there is clear evidence that this is so. In at least one other case, however, exonormative pressures appear to be intervening to resist the threat of genuine merger.

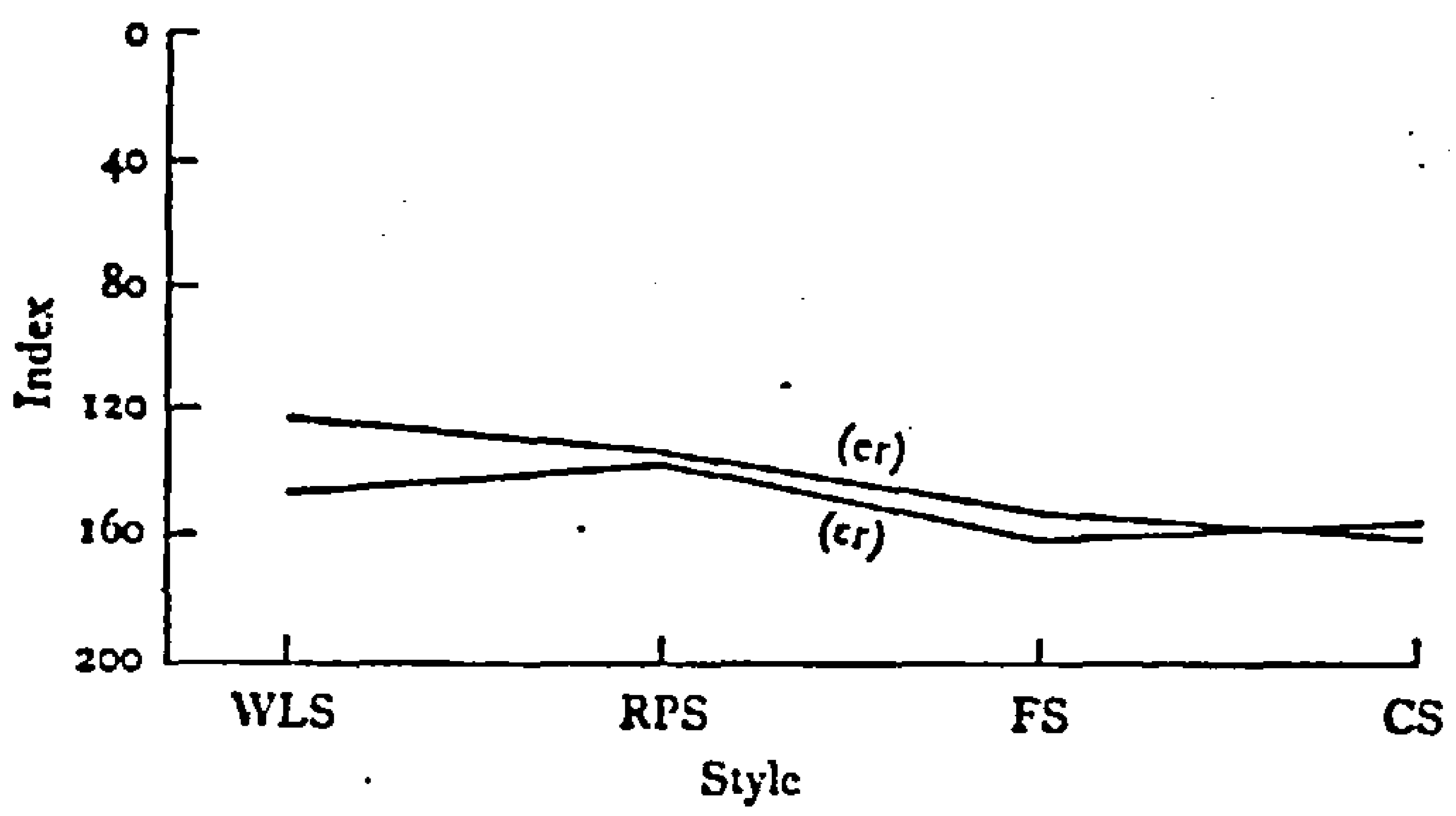
5.3.3 BEER : BARE in Norwich. One of the first sociolinguistic studies to incorporate a quantitative analysis of variable phonemic overlap was that of Trudgill 1974 (115ff). One of the alleged mergers he investigated involves the vowels in the BEER and BARE classes in Norwich. Both vowels vary in quality over a phonetic continuum ranging from half-open to close at the front of the vowel area. Fig 5-4 shows the variable realisation of these vowels for Norwich speakers of two social classes in four styles. An index score of 200 indicates consistent use of a half-open pronunciation, lower scores a closer vowel. In an attempt to symbolise traditional phonetic space, ordinate values are arranged so that 000 is at the top of the graph and 200 at the bottom (Trudgill 1974: 120). Fig 5-4a shows that mid-middle-class speakers in Norwich maintain a clear distinction between the BEER and BARE vowels, the former being consistently closer than the latter, as in RP. There is, however, a tendency for the two to converge very slightly in less formal styles. In contrast, Fig 5-4b indicates that mid-working-class speakers, who consistently report the vowels as 'the same' in minimal-pair tests, potentially distinguish them by only a very slight phonetic margin and even then only in word-list style. In less formal styles the vowels appear to be merged to all intents and purposes. (The difference in scores that produces the cross-over pattern in conversational style is not sufficiently great to be statistically significant.) The results indicate that the tendency for the two vowels to be merged in basic Norwich vernacular is offset by standardising pressures to keep them distinct. In this case there is no question of a merger being achieved through the strategy of transfer

Fig 5-4. Distribution of BEER (er) and BARE (ɛr) vowels by height in Norwich (000 = close, 200 = half-open). Four styles: word-list (WLS), reading passage (RPS), formal (FS), conversation (CS). (From Trudgill 1974: 121, 124.)

(a) Middle middle-class



(b) Middle working-class



outlined in 5.2. The overlap takes place over a phonetic continuum and is apparently not lexically selective (in the way that the Norwich BOOT : BOAT case reportedly is: Trudgill 1974: 125ff). In other words, the overlap has clear phonological, not merely distributional implications.

5.3.4 LINE : LOIN in west Cork. In a similar study, Lunny investigated the reported merger of the LINE and LOIN vowels in the English of Ballyvourney, west Cork (1981a: 70ff). He notes that there is considerable variation in the quality of the first element of the diphthongs, ranging along a continuum between mid and low and between central and back, with differences in lip posture also being implicated. He collected tokens of both vowel-classes from 21 Ballyvourney speakers and transcribed the nuclei in terms of the four vocalic variants given in Tab 5-1. The distribution of the variants is clearly different for the two classes.

Tab 5-1. Variable realisation of the vowels in LINE and LOIN in Ballyvourney, west Cork (based on figures in Lunny 1981a: 73).

		LINE	LOIN
1	[əɩ]	43%	14%
2	[ɔ̈ɩ]	22	0
3	[ɑɩ]	16	83
4	[äɩ]	19	3
Total		100	100
	N	208	208

While the LOIN vowel occurs predominantly as variant 3, the LINE vowel is realised by a greater spread of realisations but appears most frequently as variant 1. However, the classes display variable overlap, particularly at variants 1 and 3.

5.3.5 <u>Modelling variable phonemic overlap</u>. The type of variation that is evident in the overlap cases discussed by Trudgill and Lunny is quite different from the phonemic alternations described in 5.2, in that it cannot be interpreted as a matter of lexical choice. Where merger-by-transfer is in progress, there seems little problem in recognising two alternative lexical representations for each alternating lexeme, since the transfer takes place between two phonetically discrete phoneme-classes. However in variable overlap we are dealing with variation across phonetic continua where either or both of the overlapping segments is realised by a wide scatter of points in phonetic space. Clearly this cannot reflect a choice between alternative lexical representations in the way that merger-by-transfer might. (Unless we are prepared to countenance the absurd suggestion that there is a choice of multiple lexical representations for each relevant lexeme, where the number of representations corresponds to the number of perceptibly different points in the varying segment's zone of realisation.)

In fact, in their discussions of the BEER : BARE and LINE : LOIN examples, Trudgill and Lunny imply that the overlaps take place quite independently of the lexical dimension. In other words, the spread of vocalic realisations is in principle identical for any two members of a given lexical set. Taking the two words <u>tile</u> and <u>toil</u> as representative of the west Cork LINE and LOIN sets respectively, we may schematise this state of affairs as in Fig 5-5.

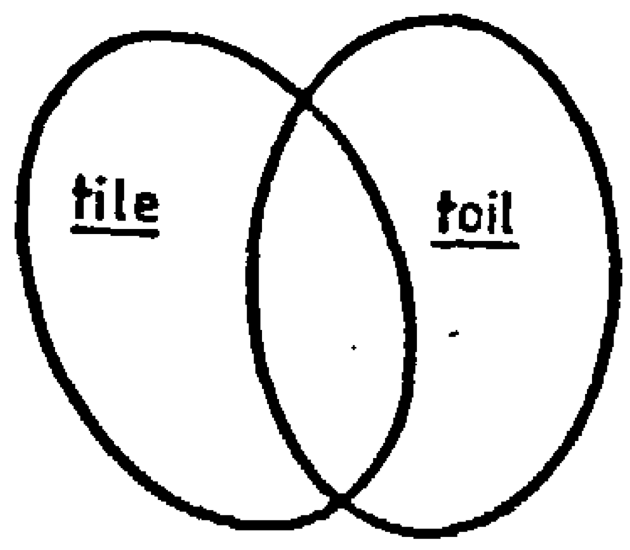


Fig 5-5. Vocalic overlap between one LINE and one LOIN item.

Each of the ellipses in Fig 5-5 represents the constant probability/error contour for different tokens of vocalic nuclei of each lexical item. That is, if we transcribe a number of repetitions of the word <u>tile</u> as spoken by a west Cork speaker on different occasions, the left-hand ellipse in Fig 5-5 will ideally describe the distribution of vocalic tokens. The figure can be viewed as a microcosm of the overlap that takes place between the entire lexical sets of which <u>tile</u> and <u>toil</u> are representative members. Neither Trudgill nor Lunny gives detailed evidence of overlap at the level of individual lexical items in their BEER : BARE and LINE : LOIN examples. However, that fluctuations in phonetic quality can affect different realisations of the same lexeme in such cases is illustrated by the figures in Tab 5-2 which relate to the MEAT : MATE overlap in BV discussed in 4.3. These show the distribution by vowel-height of one MEAT and one MATE item as produced by a single speaker on different occasions. The overlap that is evident in Tab 5-2 represents in miniature the large-scale overlap between the MEAT and MATE classes shown in Tab 4-1.

Tab 5-2. Variable realisation of vocalic nuclei in one MEAT and one MATE item as produced by one BV speaker (Eddy C).

Height	beat	late
1	0	5
2	5	13
3	4	2
4	1	0

The fact that the cases of variable overlap which I have been discussing are not subject to lexical selectivity clearly has implications for the stability and learnability of the historical distinctions in question. Reports of the alleged LINE : LOIN and MEAT : MATE mergers in HE go back some way. Spelling and rhyme evidence suggests that at least some writers considered the LINE and LOIN vowels to be merged by the early seventeenth century and the MEAT and MATE vowels by the early eighteenth century (Bliss 1979: 208-210). If we assume that the sort of variable overlap encountered in west Cork and Belfast has been responsible for inaccurate reporting of merger during at least part of the history of the vowels in question, it follows that learners have been able to acquire the historical distinctions in spite of the fact that realisations of the pairs of classes may sometimes be identical. Learners presumably have access to a historical distinction that is subject to variable overlap as long as the realisations of one phoneme-class range over an area of phonetic space that is not isomorphic with that covered by the other class.

How are we to model variable overlap, given that its domain of variability is not the lexicon? At least two other solutions suggest themselves. One is to assume that true merger has in fact taken place and that overlap is an indication of an attempt to undo it, presumably in imitation of some prestige variety in which the merger never occurred. We might say that the relevant synchronic grammar contains a single phonological unit x̲, which is the merged reflex of a historical distinction, and an adaptive rule, together with the necessary lexical marking, which applies variably to split it. For example, the nuclei of the MATE and vernacular MEAT classes in BV could both be specified as underlyingly half-close front. An adaptive rule would then optionally lower x in certain lexemes. Under this analysis, 'in certain lexemes' can be interpreted in one of two ways. Either the adaptive process is a minor rule applying only to lexemes whose lexical entry contains the relevant rule feature. Or the rule is a major one whose environment includes some diacritic feature for which all cases of x in the lexicon would be specified as either plus or minus. The latter version effectively lets the historical distinction in again through the back door, the only difference being that it is specified by an arbitrary diacritic feature rather than by some phonetically interpretable phonological feature ('the phonological use of diacritic features' (Kiparsky 1973a)).

An analysis as complex as this might only be justified if it reflected a corresponding complexity in the task facing speakers seeking to acquire the distinction. That is, for instance, if the task involved learning two arbitrary lexical sets containing x, one of which does not undergo the adaptive rule, the other doing so variably. Two things argue against this position. First, there is a growing body of evidence which suggests that adaptive phonological change characteristically proceeds via lexical transfer (see the discussions in 3.1, 3.5 and 5.2). This implies that speakers seeking to adapt to an external norm tend to operate with choices between phonetically discrete variants. However, variation involving overlap occurs along a phonetic continuum and is not necessarily subject to lexical conditioning. Second, if overlap were symptomatic of an attempt to reverse a true merger and speakers thus had to learn to split the lexical class into two large arbitrary sets, we might expect to encounter hypercorrective misallocations of the type that are characteristic of adaptive change by lexical transfer (see the examples in 4.2). A misallocation in terms of the schema at stage III in Fig 5-3 would involve A items being pronounced with a phone which falls within that part of the y range which excludes x realisations. However, this type of hypercorrection is conspicuously absent from the cases of overlap described here and elsewhere in the literature. What is remarkable about these examples is the finding that pairs of historical classes remain intact for as long as their zones of realisation remain nonisomorphic.

A much more economical solution to the problem of modelling variable overlap is to assume that the historical distinctions in question are maintained in the synchronic grammar but are subject to what I shall call variable neutralisation. This implies the recognition of phonological oppositions which have a potential for phonetic manifestation but which may sometimes be suspended. The exact interpretation of what I mean by neutralisation here requires some comment.

In generative phonology, neutralisation has often been conceived of as a synchronic process. Thus in a text-book definition of the term, Schane treats neutralisation as a dynamic process on a par with assimilation, deletion, insertion, metathesis, etc. (1973: 59-61). Defined in this way, the concept might be applied to the problem of variable overlap in the following way. An underlying distinction is subject to an optional phonological process which operates to neutralise the contrast on the phonetic surface. Overlap is thus seen as a purely surface phenomenon which reflects the operation of a variable rule of competence. The form of such a rule is unproblematical, since it could presumably conform to the models already elaborated in the sociolinguistic literature on variable rules. However, for at least two reasons I prefer not to interpret variable neutralisation in this way. Firstly, I intend the concept as a model of what individual speakers are observed to do, not as a component of some form of community grammar which is the assumed locus of variable rules in most studies employing this framework. The problematical status of variable rules as models of community-wide competence and their applicability to the variable performance of individual members of the community have been discussed in detail elsewhere, and it is not my intention to take up the issue here (see especially the critiques in Romaine 1981, 1982: 240ff). Secondly, it is possible to offer a simple interpretation of variable neutralisation which dispenses with the elaborate model of 'underlying' vs 'surface' distinctions mediated by synchronic processes.

If variable neutralisation as proposed here is to be formally expressed in rule shape, I intend it to be nothing more than a statement about the observed output of individual speakers. A rule of this type simply provides an array of possible realisations associated with a given phoneme. Overlap is then a reflection of the extent to which this array encompasses an area of phonetic space which includes parts of that covered by the array associated with another phoneme. The variability of the neutralisation stems from the fact that the probability/ error contour associated with each member of an overlapping opposition is relatively large, so that individual tokens of one phoneme may sometimes occur in areas of phonetic space sometimes also occupied by individual tokens of the other phoneme. Tokens falling within the area of overlap can be said to be nonimplementations of a potential phonological contrast.

5.3.6 Unconditional and conditioned mergers. Trudgill's and Lunny's treatment of BEER : BARE and LINE : LOIN in terms of homogeneous classes perhaps gives the impression that the realisational spread of every individual member of a given lexical set is isomorphic with that of the set as a whole. However, this is probably a consequence of the fact that they take no account of possible phonetic conditioning which might affect distributions within each class. Detailed studies of vocalic variation involving phonetic continua indicate that lexical classes tend to dissolve into allophonic subsets defined by phonetic environment (e.g. Labov, Yaeger & Steiner 1972). There is evidence to suggest that this is no less true of variation involving vocalic overlap. In other words, the variable neutralisation of a given vocalic contrast is likely to be favoured by particular phonetic contexts. This is in fact in line with traditional categorical accounts of merger. Before discussing a couple of examples in detail, we may recall the different patterns of merger that have been recognised by historical phonologists and summarise the sorts of effects these have been assumed to have on synchronic grammars.

Phonological mergers can be classified according to their sensitivity to environmental constraints (see especially the taxonomy in Hoenigswald 1960: ch 9). In the case of complete or unconditional merger, a phonological contrast is lost in all the linguistic contexts in which it occurs. Where a contrast becomes suspended in only a limited set of environments, the merger is said to be partial or conditioned. A conditioned merger may leave its imprint on a synchronic grammar in the form of a rule of contextual neutralisation:

(4)

diachronic process	synchronic effect
conditioned merger	contextual neutralisation
	stage 1 /x/ : /y/
x > y / _ z	
	stage 2 /x/ : /y/
	x —> y / _ z

The synchronic impact of conditioned merger is neutralisation in its original Prague School sense, i.e. the suspension of a phonological opposition in a specific set of environments but its maintenance elsewhere (see Trubetzkoy 1939: § I.V; Martinet 1936). As an example we may cite the collapse of the voiced : voiceless distinction in German word-final obstruents.

The effects of unconditional merger are more far-reaching and have been the subject of some disagreement. One result of such mergers is the restructuring of synchronic grammars: the complete merger of two phonemes brings about a reduction by one in the number of units in the phonological system:

(5)

diachronic process	synchronic effect
unconditional merger	restructuring
	stage 1 /x/ : /y/
x > y	
	stage 2 /y'/[4]

In this case, the diachronic process of merger leaves no trace of itself as a synchronic rule.

However, some phonologists have contemplated the possibility that at least some unconditional mergers may have only a superficial impact on synchronic grammars. Rather than causing restructuring, a process such as this may leave an underlying opposition intact and be preserved as a synchronic rule of context-free neutralisation. The effect of such rules, which Kiparsky (1973a) has termed absolute neutralisation rules, is to suspend an underlying distinction in all surface contexts:

(6)

diachronic process	synchronic effect
unconditional merger	absolute neutralisation
	stage 1 /x/ : /y/
x > y	
	stage 2 /x/ : /y/
	x ⟶ y

Absolute neutralisation is necessarily associated with abstract phonological analyses, since it permits the setting up of nonsurfacing underlying segments. As an example we may cite Halle's (1962) treatment of the MEET : MEAT : MATE series in sixteenth-century SSE, already discussed in detail in 4.5. Halle argues that the MEAT and MATE vowels remained underlyingly distinct in the sixteenth century despite the operation of a synchronic rule which neutralised them in all surface environments. Subsequent loss of the rule allegedly allowed the distinction to surface once again in the seventeenth century. Similar abstract analyses which specifically incorporate absolute neutralisation have been proposed for example for Yawelmani (Kisseberth 1969), Nupe (Hyman 1970, 1973), Hungarian (Jensen 1972, 1974), Maltese Arabic (Brame 1972) and Uralic and Altaic languages (Vago 1973). In all these cases the abstract synchronic analyses look very much like historical reconstructions: the nonsurfacing underlying segments bear a close resemblance to attested or reconstructed historical segments, the absolute neutralisation rules to diachronic processes of merger.

On the face of it, the rules of neutralisation that can be used to characterise the cases of overlap discussed by Trudgill and Lunny seem to bear at least a formal resemblance to rules of absolute neutralisation to the extent that both are context-free. In their function, however, the two types of rule are quite different. Abstract analyses incorporating absolute neutralisation are allegedly justified on the grounds that they bring underlying regularity to surface irregularities. Phonetically identical segments are assigned different underlying specifications on the basis of their differential behaviour in morphophonemic processes. The underlying contrast is then absolutely neutralised once it has served its purpose of specifying different environments to particular morphophonemic rules. The phonological contrasts in variable phonemic overlap of course have no such triggering function.

The most theoretically objectionable point about abstract analyses of the sort outlined in (6) concerns the inaccessibility of underlying segments which never surface.[5] Underlying segments which are destroyed by rules of absolute neutralisation are nonexistent in the child's input and never occur as surface forms in his output. In cases of variable neutralisation, on the other hand, phonological contrasts are accessible to learners for as long as the probability/error contours associated with each member of a particular opposition are not isomorphic.

However, even the formal similarity between absolute neutralisation and the variable neutralisation proposed for the Norwich BEER : BARE and the west Cork LINE : LOIN overlaps is only apparent. As already pointed out, the apparent insensitivity to context of these overlaps is probably simply a reflection of the fact that Trudgill and Lunny do not provide details of how the vocalic distributions break down according to phonetic environment. The same impression is given by the figures in Tab 4-1 which show the degree of overlap between MEAT and MATE in BV. The conflation of figures for all phonetic environments in this case masks the fact that the extent of overlap is in fact phonetically conditioned. The crucial distinction in the environment is between following voiced and voiceless consonants because of the radical length differences these condition in the MEAT and MATE vowels in BV. The details of these conditions, which also apply to /əi, əʉ/ and variably to /o/, have already been outlined in 1.4.1. Briefly, under stress these vowels are short before a voiceless consonant or before a sonorant followed by a voiceless consonant ([-voice] in Tab 5-3) and long elsewhere ([+voice] in Tab 5-3). According to the figures in Tab 5-3, length differences in the MATE vowel show a variable correlation with quality differences: the vowel tends to be lower when short (i.e. in voiceless environments) than when long. The MEAT vowel does not show an equivalent clear distributional difference. Since MEAT is typically realised with a lower vowel than MATE, there is a greater likelihood of overlap between the two classes in voiceless environments, where variant 2 can be a relatively low realisation of MATE or a

Tab 5-3. Distribution of vowel-height by phonetic environment in BV MEAT and MATE.

	_[-voice]		_[+voice]	
Height	MEAT	MATE	MEAT	MATE
1	0%	20%	0%	53%
2	31	71	38	45
3	67	9	57	2
4	2	0	5	0
	100	100	100	100
N	39	59	21	40

relatively high realisation of MEAT. The variable neutralisation that is represented by this overlap is thus shown to be context-sensitive, although the environmental constraints themselves are also variable.

The variable neutralisation that affects MEAT in BV is a particularly complex example, since the word-class is threatened with merger from two different sources. On the one hand, the class is subject to merger-by-transfer with the MEET class, as indicated by the alternation between discrete mid (vernacular) and high (standard) variants (see 3.5.4). On the other hand, the vernacular MEAT variant is subject to variable neutralisation with the MATE vowel. Whether or not this variable overlap is a symptom of merger-by-drift in progress is difficult to determine. In any case the question may be academic, since there is a strong possibility that any potential true merger between MEAT and MATE will be short-circuited by the process of transfer that is apparently well on the way to producing a categorical merger of the MEAT and MEET classes. However, in the last example of variable neutralisation which I wish to look at in detail, there is clear evidence that overlap is indeed a precursor of true merger.

5.3.7 DON : DAWN in Belfast. As pointed out in 3.6.5, the lengthened reflex of ME /o/ (the DON class) is reportedly merged in BV with the isolative reflex of ME /au/ (the DAWN class). The merger is a conditioned one, since ME /o/ has only been regularly lengthened in certain phonetic environments, retaining its historical shortness elsewhere. The crucial following environments that constitute the length conditions can be summarised as follows:

(7)

(a) voiceless fricatives (F);

(b) morpheme-final sonorants or voiced obstruents or clusters of both (D);

(c) sonorants or voiced obstruents followed by a tautomorphemic unstressed syllable (D$);

(d) voiceless stops and affricates or clusters of sonorant plus voiceless consonant (T).

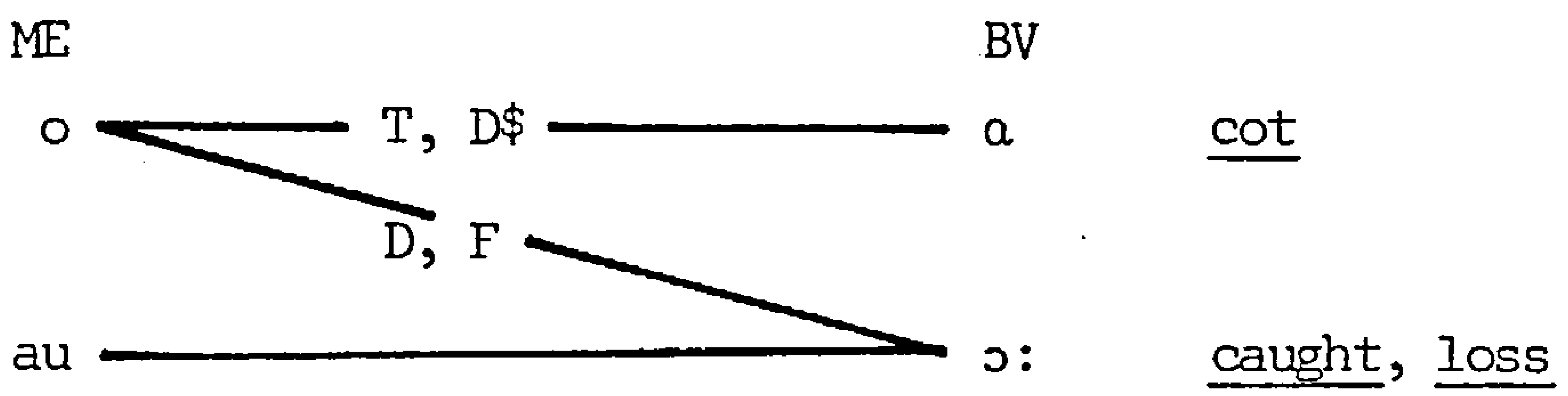
The environments in which ME /o/ is typically lengthened in BV are F and D. Under these conditions the vowel is reportedly merged with the reflex of ME /au/. Thus loss rhymes with sauce (as in conservative RP); doll rhymes with ball. In minimal-pair tests BV speakers consistently judge for example don and dawn as 'the same'. In the 'short' environments D$ and T, the ME /o/ : /au/ distinction is usually maintained, the length difference being accompanied by a clear quality contrast. When short, ME /o/ is generally low nonround [ɑ], often fronted to [ä]; ME /au/ and lengthened /o/ tend to be mid round centralised, frequently appearing with a centring off-glide, i.e. [ɔ̈ə] or [ɔ̈:]. Thus we find minimal pairs such as

(8)

ME /o/		ME /au/	
[kɑt]	cot	[kɔ̈:t]	caught
['bɑde]	body	['bɔ̈:de]	bawdy
['kɑləʲ]	collar	['kɔ̈:ləʲ]	caller

At first sight this seems to be a straightforward case of contextual neutralisation with a historical background in conditioned merger (as in (4)):

(9)



However, it was noted that many speakers of BV, particularly those from west Belfast, often pronounced the DON and DAWN vowels as low peripheral [ɒ:] or [ɑ:]. A quantitative study of the speech of a number of BV speakers was undertaken to determine whether the quality variation in the low back vowel area was randomly distributed across both the DON and DAWN classes. (It was suspected that it was not.) The phonetic continuum along which this variation occurs was initially divided for transcription purposes into three variants: [ɔ̈:], [ɒ:] and [ɑ:]. Group percentages for east and west Belfast are given in Tab 5-4. These figures confirm that speakers from the west of the city are more likely than those from the east to use low realisations of the DON and DAWN vowels. Moreover the scores reveal that for west Belfast speakers the distribution of low vs mid realisations is significantly different for the two classes ($p < .05$ by chi square).

Tab 5-4. Quality variation in the reflexes of ME /au/ (DAWN) and lengthened /o/ (DON) in east and west Belfast (21 speakers).

	east Belfast		west Belfast	
	DON	DAWN	DON	DAWN
[ɔ̈:]	93%	93%	85%	53%
[ɒ:]	7	6	15	42
[ɑ:]	0	1	0	5
Tot	100	100	100	100
N	284	252	201	220

The extent to which this variation is present among individual speakers is shown in Tab 5-5. This table only includes speakers from whom DON and DAWN tokens were collected in sufficient quantities to allow significant generalisations to be based on them. Since nonround tokens occurred only rarely, the index scores in Tab 5-5 are based on a simple dichotomy of mid centralised (= 000) vs low peripheral (= 100) realisations. As an indication of the potential amount of quality distinction between the two classes, differences in index points between the DON and DAWN scores were also calculated for each speaker (given in the rightmost column of the table).

Tab 5-5. Individual index scores measuring quality variation and degree of overlap in the reflexes of ME /au/ (DAWN) and lengthened /o/ (DON) in BV (100 = low, 000 = mid). East (E) and west (W) Belfast.

Speaker	DON	DAWN	DAWN index minus DON index
MC (W)	014	063	049
MS (W)	010	058	048
AD (W)	008	050	042
MB (W)	044	073	029
CH (W)	000	027	027
EC (W)	017	043	026
GMi (W)	004	029	025
GMcD (W)	015	020	005
JH (W)	006	011	005
PMcG (W)	014	015	001
MF (W)	012	013	001
JC (E) RB (E) BMcA (E) PX (E) GMa (E)	000	000	000

The speakers in Tab 5-5 are divided into three groups on the basis of differences in index points between the DON and DAWN scores. In the topmost group there is a clear (but by no means categorical) difference in quality distribution between the two word-classes. For these speakers, DAWN is more often realised with a low vowel than is DON. This pattern is repeated in the middle group but not quite so clearly. The third group is quite different from the other two in that there is no apparent quality distinction between the DON and DAWN classes: both are categorically realised with a mid vowel. The areal differences found in Tab 5-4 are also clearly evident in the figures for individual speakers. Speakers with a potential DON : DAWN contrast are typically from west Belfast; those who score 000 for both word-classes are typically from the east of the city.

The conditioned merger of ME /au/ and /o/ that is reported by BV speakers is therefore categorical in only some instances. For the majority of speakers, the historical opposition is maintained in the 'short' environments T and D$ (as in (8)). For some speakers, particularly from east Belfast, reports of a merger in the 'long' environments D and F are indeed correct. For others (mostly from the west of the city), however, the conditioned merger is not categorical: quality differences are potentially capable of maintaining the opposition in 'long' environments. For these speakers, don may typically be pronounced [dɔ̈:n], while dawn may typically be [dɒ:n] or even [dɑ:n]. In other words, the isolative reflexes of ME /o/ and /au/ are subject to categorical contextual neutralisation in one group of speakers but variable neutralisation in another.

The figures in Tab 5-5 present a clear picture of contextually sensitive overlap which is indicative of merger in progress. It is likely that the pattern of variable overlap found in west Belfast represents an earlier stage in the development of a conditioned merger which has gone to completion in east Belfast. That east Belfast is leading the way in the merger of ME /o/ and /au/ is further confirmed by the finding that some speakers in this part of the city for whom the merger is categorical in environments F and D also show the beginnings of variable neutralisation in other environments (see Tab 5-6). For these speakers, the lengthening of ME /o/ is creeping into environments that are otherwise resistant to it, i.e. T and D$, thus paving the way for an unconditional merger of ME /o/ and /au/. This pattern of development conforms to the classical model of internally evolving linguistic rules, according to which an innovating rule initially enters a synchronic grammar in variable shape operating in a restricted set of environments (Weinreich, Labov & Herzog 1968, Labov 1972a: ch 9). As the rule gathers momentum, it spreads variably to other environments and becomes categorical in its earliest contexts. Eventually it may assume the status of a fully categorical rule which applies in all environments.

The areal distribution of the DON : DAWN merger in Belfast can be seen to reflect the competing influences of the two main dialect-types of the city's rural hinterland, SUE and US (see 3.6.5). As far as the development of ME /o/ and /au/ is concerned, SUE, it will be recalled, is essentially southern English in type: ME /o/ through lengthening has merged with ME /au/ under /ɑ:/ only in environment F (see 1.3.2). In US, on the other hand, there has been unconditional merger of the equivalent

Tab 5-6. Lengthening of ME /o/ (cot, body, loss, god) in east Belfast. 100 = long; 000 = short.

Environment	F,D	D$	T
Speaker			
GMcC	100	000	000
GMa	100	000	000
SB	100	000	000
BC	100	015	000
BMcA	100	018	000
FO	100	020	000
JC	100	060	000
RB	100	044	006
MP	100	019	012
SMcA	100	011	014
NB	100	036	020

ESc vowels under /ɔ:/ (see 1.2.3). The trend in BV over the last 120 years or so has been for a more SUE-like distribution of ME /o/ and /au/ reflexes to give way to a more US-like pattern (see 3.6.5). It is natural that west Belfast with its predominantly south and west Ulster background should show the most restricted distribution of the DON : DAWN merger, whereas east Belfast with its greater degree of US input should be leading the way towards a potentially unconditional merger of the two classes. The diffusion of the merger across different phonological environments in BV can be expressed in terms of the arrangement of different sociolects on an implicational hierarchy. In wider perspective, these lects can be ordered in relation to other Ulster dialects and ultimately in relation to the descendants of English and Scots source dialects (see Tab 5-7).

5.3.8 A model of merger-by-drift. The variable overlap of the MEAT : MATE and DON : DAWN vowels in BV suggests a pattern of merger-by-drift which can be viewed as proceeding through the internal evolution of neutralisation rules. The context-sensitivity of these rules indicates that a refinement of the merger-by-drift model sketched in Fig 5-3 is in order. Quantitative studies of gradual sound change in progress show that vowel classes typically dissolve into allophonic subsets and

Tab 5-7. Diffusion of the merger of ME/ESc /o/ : /au/ in BV and some of its source dialects.

0 = categorical maintenance
X = variable neutralisation } of historical contrast.
1 = categorical neutralisation

Environment	F	D	D$	T
n.England	0	0	0	0
s.England/SUE	1	0	0	0
Belfast				
A (west)	1	X	0	0
B (east)	1	1	0	0
C (east)	1	1	X	0
D (east)	1	1	X	X
Scots/US	1	1	1	1

that particular subsets undergo change in advance of others in the same class. That is, the probability/error contour associated with the realisation of a particular phoneme in a particular phonetic environment may shift earlier and/or faster than those associated with the same phoneme in other environments. In terms of the variable neutralisation model under discussion here, some allophonic subsets of a particular phoneme may show a greater propensity than others for overlap with allophones of a neighbouring phoneme. A revised schema of merger-by-drift which incorporates a dimension of variable contextual neutralisation might look something like Fig 5-6. The large ellipses in Fig 5-6 represent the gross probability/error contours associated with the realisation of phonemes x and y in phonetic space. The smaller ellipses are to be interpreted as representative allophonic subsets realised in the phonetic environments of following a and b. At stage I the two phonemes are realised in discrete areas of phonetic space. Through the drifting of the local frequency maxima associated with each vowel, the two phonemes come to approximate one another, more closely in environment a than before b (stage II). By stage III there is variable overlapping of the vowels in environment a. This contextual overlap becomes categorical at stage IV producing conditioned merger of x and y. Subsequent developments may produce unconditional merger, as

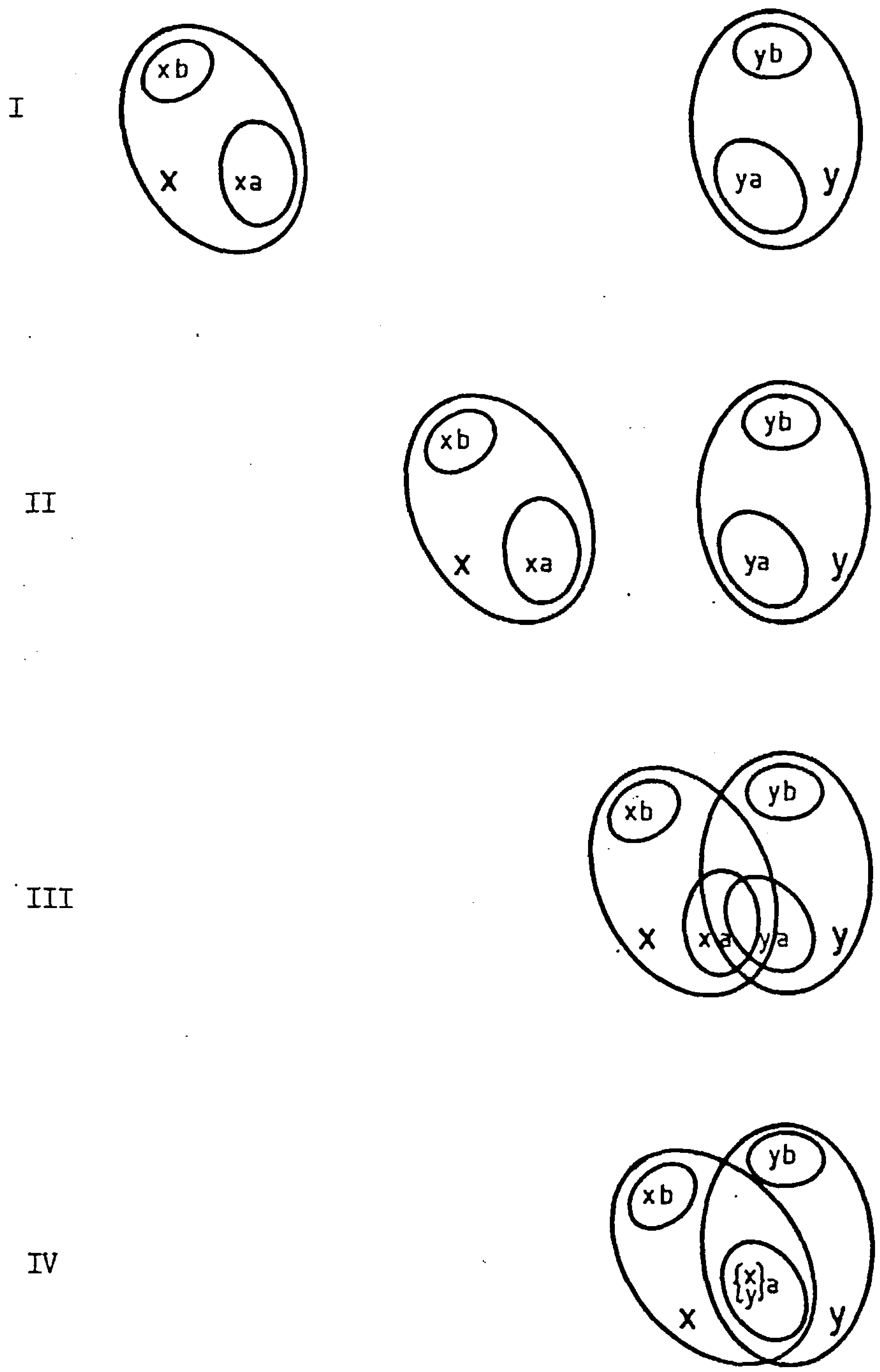
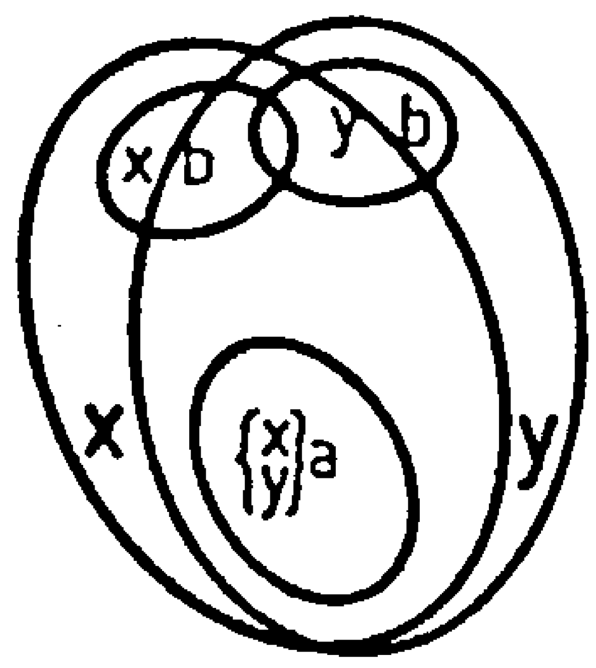


Fig 5-6. Conditioned merger-by-drift. (Continued overleaf.)

V



VI

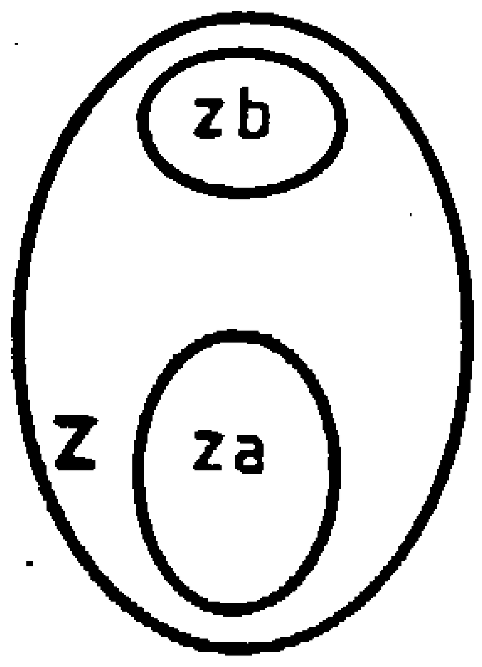


Fig 5-6 continued.

the vowels come to overlap variably in environment <u>b</u> (stage V) and eventually coalesce completely to form a new structural entity <u>z</u> in the vowel system (stage VI).

5.4 <u>Production and perception of falsely reported mergers</u>

The falsely reported mergers discussed here and elsewhere in the literature obviously raise serious theoretical as well as methodological problems for the phonologist. In this section I wish to address two of these in particular. First, how do we account for the apparent disjunction between production and perception in false reports of merger? That is, how is it that speakers are sometimes apparently unable to recognise distinctions they actually produce themselves? A second, methodological issue concerns the reliability (or otherwise) of native-speaker judgements in formal test conditions.

It has been recognised that speakers are often unable to perceive distinctions in other dialects that are not present in their own (e.g. Troike 1970). An initial conclusion that might be drawn from the findings on inaccurate self-reports of merger is that speakers may sometimes even be unable to recognise distinctions that are present in their own production. This apparent production/perception asymmetry may be interpreted as reflecting different accessing mechanisms, one for speaking, the other for listening, for a single mental lexicon (see for example Fay & Cutler 1977). A more radical position would be to take the asymmetry as supporting a dual-lexicon hypothesis, according to which one set of representations is required for encoding motor commands and another, acoustically-based set for decoding (e.g. Klatt 1981).

Nunberg's solution to the problem of falsely reported mergers which arise from close approximation of phonemes in phonetic space is to assume a discrepancy between what he terms <u>limits of production</u> and <u>limits of confusability</u>, which he schematises as in Fig 5-7 (1980: 227ff).

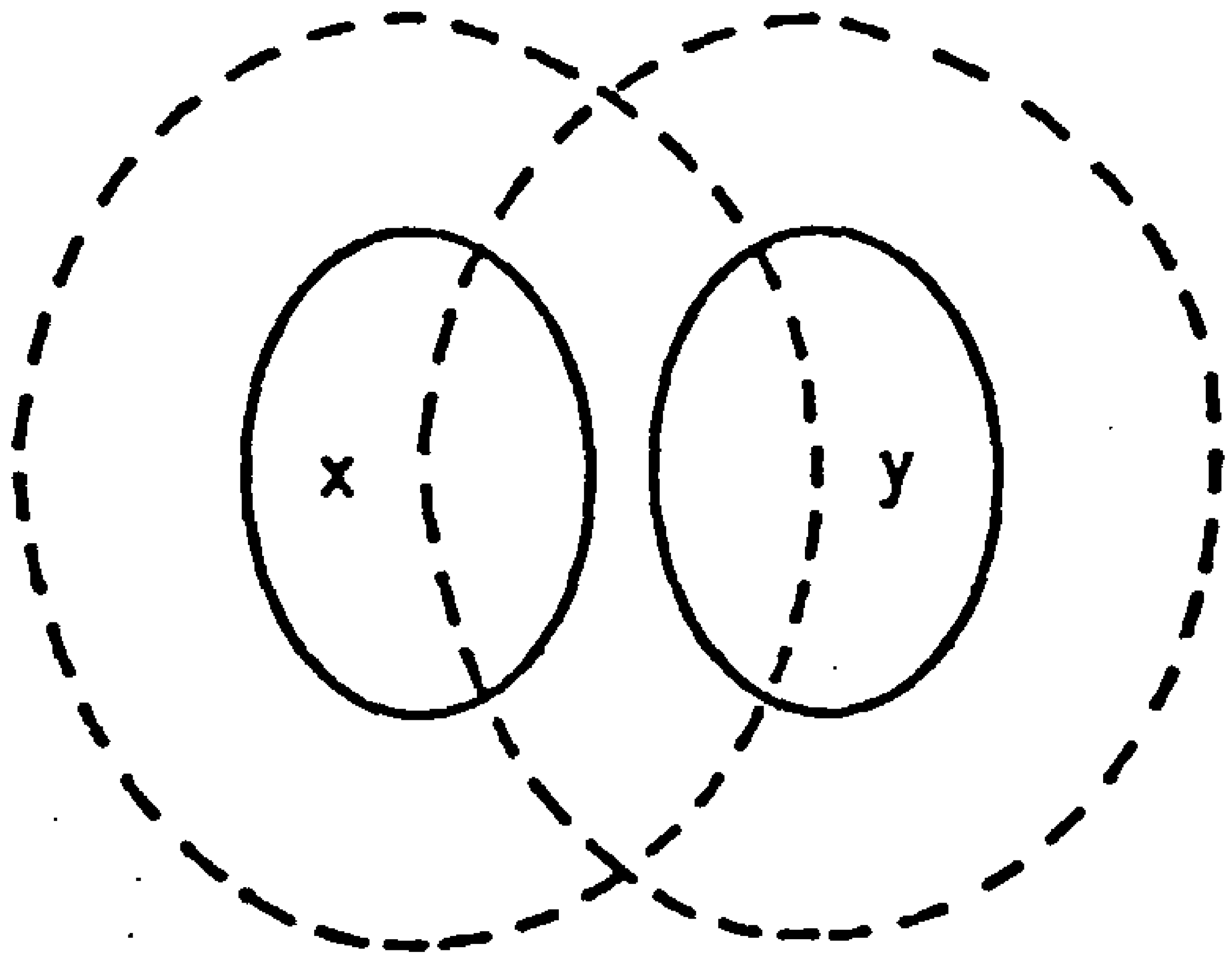


Fig 5-7. Perceptual overlap between phonemes adjacent in phonetic space.

The inner, solid ellipses in Fig 5-7 represent the probability/error contours associated with the production of phonemes x and y, i.e. they are the limits of production of the two phonemes. Each of the outer, broken ellipses describes the locus of points that the naïve listener is able to judge as just noticeably different from some point within the concentric production ellipse. This Nunberg refers to as the limit of confusability. False reports of merger, he suggests, may occur where there is an area of overlap between the limits of confusability associated with two phonemes (as in Fig 5-7).

Nunberg's hypothesis receives support from experimental analysis of a falsely reported merger in Swedish undertaken by Janson (1982). The opposition half-close vs half-open which distinguishes the Swedish long front vowels /e:/ and /ɛ:/ is neutralised for short front vowels in Stockholm but maintained in production in Lycksele dialect. In a discrimination test, Stockholm speakers were unable to use a difference in phonetic quality to distinguish reliably between short /e/ and /ɛ/. What is surprising is that, in the same test, Lycksele speakers were also unable to discriminate efficiently between the two vowels, even though they consistently kept them apart in production. Janson identifies a region of uncertainty which characterises the perceptual boundary between /e/ and /ɛ/; the notion closely parallels Nunberg's limit of confusability.

It is of course dangerous to assume that inability to judge two vowels as different in discrimination tests necessarily reflects a perceptual short-fall. After all, learners must obviously be able to perceive distinctions before they are capable of acquiring them. (More on this below.) One thing is clear, however: falsely reported mergers involve lexicalised contrasts that carry no marking function. In the Lycksele dialect, for example, the half-open vs half-close quality difference must appear in the lexical representation of items containing short /e/ or /ɛ/, since speakers maintain the contrast in production. The phonetic difference is, however, apparently not used in perception to mark differences in meaning. The notion of marginal contrasts which are lexicalised but have no marking function is not a new one. Examples that have been discussed in the literature include the Scots 'vowel 4a' in e.g. never, contrasting with the stressed nuclei of sever and river (Abercrombie 1954, Mather 1975) and the 'barred-i' of some United States accents (Trager & Smith 1951: § 1; Lass 1981: 533ff).

The apparent production/perception asymmetry in falsely reported mergers poses an interesting acquisitional problem. How is it possible for a speaker-hearer to have acquired the ability to produce a phonological contrast that he denies being able to hear? It is already known from studies on language acquisition that a child's productive capacity initially lags behind his receptive abilities. At an early stage in his development the normal child can perceive linguistic distinctions that he cannot produce himself (see for example Shipley, Smith & Gleitman 1969; Edwards 1975). But in falsely reported mergers we encounter a reversal of this relation, in which production appears to outstrip perception. This may turn out after further research to be characteristic of situations where sound change is in progress. Janson (1983) reports a case of gradual sound change affecting two vowel phonemes in Stockholm Swedish where speakers' perception of the vowels is lagging behind a shift in production norms. How do we account for the apparent contradiction here? On the one hand, we find receptive ability exceeding productive ability in child language. On the other, we find perception trailing production in adult language. One hypothesis about how the production/perception disjunction might arise in cases of falsely reported merger has been proposed by Drachman (reported in Linell 1979: 42). During the early stages of development, a child is able to make very fine perceptual distinctions which subsequently determine fine articulatory differentiations. Even when the ability of phonetic discrimination is diminished as the child matures, the original finely differentiated articulatory habits are retained. There is then a stage beyond which the speaker no longer has perceptual access to all the phonological knowledge that underlies his production.

Unfortunately it follows from this that some areas of linguistic competence may simply not be accessible through formal testing in which subjects are asked to make introspective judgements. For example, the results of minimal-pair and commutation tests used in the investigation of falsely reported mergers have been found not to reflect what speakers actually do in spontaneous speech. It may be of course that the development of more sophisticated experimental techniques will correct this mismatch. Part of the problem is that the outcome of discrimination tests can be contaminated by all sorts of response bias factors. Of particular relevance here are the effects of the payoff function in such tests (cf. Green 1960, Luce 1963). It is quite possible that, from the speaker's point of view, the motivation for recognising contrasts with no marking function is less than that for recognising those with such a function. Inaccurate reporting of mergers in minimal-pair and commutation tests may simply indicate that the motivation to provide correct responses is not particularly high.

On the other hand, it may be that the type of linguistic competence we are probing under formal test conditions is not the same as that used in natural speech. It seems plausible to suggest that the skills required of speakers performing metalinguistic tasks, in which linguistic units are manipulated as objects stripped of their context in everyday discourse, are quite different from the sort of competence that underlies linguistic behaviour in ordinary conversation (cf. the discussion in Schnitzer 1972: 90ff). In phonological discrimination tests, for instance, the experimenter may be measuring the speaker's ability to label contrasts overtly rather than the way he perceives them in day-to-day contexts. If a particular contrast has no marking function, as is the case with falsely reported mergers, it is quite possible that the native speaker will fail or neglect to label it correctly in formal test settings. In other words, failure by native speakers to make correct judgements about contrasts they maintain in spontaneous speech does not necessarily imply that the distinctions are not perceived in everyday communication. It may simply reflect the fact that the speaker's perception of a particular distinction is not available for introspection on command.[6] This seems all the more plausible in view of the fact that contrasts with no marking function are characteristically <u>sociolinguistic indicators</u> in Labov's sense (1972a: 319ff). That is, they are apparently maintained below the level of consciousness but are nevertheless subject to social (but not stylistic) stratification. The communicative function of such contrasts is thus to carry social meaning, specifically indexical information about the speaker and his group membership.

5.5 The role of child language in the development of mergers

Recent studies on the emergence of vowel contrasts in young children may be fruitfully combined with traditional gradualist views of sound change to throw light on the possible contribution of ontogenesis to the phylogenetic development of merger-by-drift. During the early stages of phonological acquisition, the probability/error contours associated with the realisation of emergent vowels in phonetic space are very large (Winitz 1960; Lieberman 1980; Bond, Petrosino & Dean 1982). (Bond et al report deviation by as much as 1000 Hz in the frequency of F_2 in the vowel /æ/ (<u>bad</u>) at age 17 to 22 months.) Linguistic maturation brings about a progressive narrowing of the probability/error contours until vowel realisations approximate those of the adult model. The local frequency maximum around which realisations of a particular vowel eventually stabilise in the child's speech may not coincide exactly with that of the adult target. There may be physiological or phonological reasons for this tendency to 'miss the target' (such as the operation of articulatory or auditory constraints or systemic pressures associated with phonological space) which ensure that it is distributed fairly widely across different learners of the same dialect. Through normal sociolinguistic mechanisms, this tendency may become transmitted through the community so that it takes on the status of a genuine sound change. Labov (1980a) provides quantitative evidence of how such drifting of local frequency maxima is detectable in the differential distribution of quality in particular vowels across generations within the same speech community.

Consider how this model might be extended to the development of merger-by-drift. One result of the large probability/error contours associated with vowel production in the earliest stages of acquisition is that there is extensive overlap between emergent phonemes. Disengagement of overlapping phonemes usually occurs with linguistic maturation. Suppose, however, for whatever reason a particular contrast is not disentangled in this way, that overlap persists beyond the early stages of acquisition and becomes transmitted throughout the speech community. This would produce patterns of vocalic overlap in adult speech of the kind examined in 5.3. Further drifting of the local frequency maxima associated with the vowels in question might then eventually lead to complete merger.

Footnotes to Chapter Five

1. The south Yorks vernacular /ɛi/ class also includes a number of items that contained /ixt/ in ME, e.g. right, night. Under standardisation, these are transferred into the /aɩ/ (bite) class.

2. By model here I simply mean a descriptively adequate characterisation of the native speaker's output in terms of phonological representations and rules. At its strongest, the relation between the model and the native speaker's internalised competence is only intended to be metaphorical. I certainly intend no direct isomorphism between such theoretical constructs as rule or representation on the one hand and the neurological structures which subserve language function on the other (cf. the discussions in Linell 1979: ch 1; Matthews 1979; Whitaker 1970: ch 1). Later on, however, I return to some of the psycholinguistic issues raised by studies of merger in progress (see 5.4).

3. The possibility of merger in progress can only be seriously considered if variable overlap is observed in mature speakers. It is not usually appropriate to talk of merging classes in the context of the system-wide overlap that is characteristic of early child phonology. This is because 'overlapping classes' in immature speech were not separate before in esse but are distinct only in posse. However, the nature of overlap in the early stages of phonological development may prove a valuable source of evidence in our search for a model of how true mergers proceed across generations. More on this in 5.5.

4. Phoneme /y'/ at stage 2 in (5) is diacritically marked as different to earlier /y/ for the following reason. In strict Saussurian terms, the outcome of unconditional merger is a different structural entity from either of its sources, since it participates in a restructured network of relations in the phonological system.

5. For detailed critiques of absolute neutralisation, see Kiparsky 1973a, 1973b, Harms 1973, Miller 1973. More general criticisms of abstract analyses in generative phonology are to be found in, among others, Hooper 1976 and Linell 1979. Note that the whole 'abstractness' issue interacts with the debate over rule-ordering, since absolute neutralisation rules must always be extrinsically ordered after the rules which nonsurfacing segments are designed to trigger.

6. The success of phonetic discrimination tests may also hinge to a certain extent on the way in which receptive competence is translated into expressive competence in the early stages of language acquisition. There is a growing body of neurolinguistic evidence which indicates that the interface between the primary receptive and expressive language areas in the cortex is established

Footnote no 6 continued

not only through cortico-cortical connections but also more importantly via cortico-subcortical projections (e.g. Myers 1967, Kornhuber 1977). Penfield & Roberts (1959) in fact maintain that the major integration centre of the language areas in the cortical superstrate is located in specific subcortical sites, particularly in the dominant thalamus (see also Ojemann 1976). It seems likely that the transfer between receptive and expressive functions, including the transfer of fine perceptual distinctions into finely differentiated articulatory habits that takes place in the early stages of phonological development, involves these subcortical connections in some way. This type of transfer is also likely to be implicated in tasks where speakers have to make introspective judgements about their own production. It is by no means obvious that subcortical transfer should be amenable to investigation by the same sort of formal testing as that designed to elicit judgements about areas of linguistic competence more clearly associated with cortical function.

POSTSCRIPT

Adaptive change and dialect maintenance

If the 'reason why people have been unwilling to give up their belief in generative phonology is that it is too much fun' (Sampson 1980: 209), then I suppose I may have come over as something of a spoilsport in the preceding pages. At several points I have tried to pour cold water over the enthusiasm with which the methods and formalisms of generative phonology have been carried over into historical linguistics. In particular I have been rather sceptical of the claim that all phonological evolution can ultimately be ascribed to rule change. It is true that formulating maximally general rules to describe language change can provide the phonologist with endless hours of amusement (which may be justification enough for continuing the exercise). Indeed in some cases it does prove insightful to use rule formalisms to capture certain types of change, specifically those that involve fully automatic rules of pronunciation. In other cases, however, I suspect that the appropriate theoretical description is rather more mundane. That is, the domain in which some allegedly phonological changes operate is not the rule component at all, but the lexicon. In such cases, all that is involved is the lexical redistribution of phonemes, which at least initially may have no structural impact on the language whatsoever. The synchronic variation that is symptomatic of such changes while they are in progress suggests that they involve matters of lexical choice rather than phonological processes. The difference between lexical transfer and phonological processes proper is particularly significant when it comes to examining the sorts of change that take place in situations of dialect contact.

Of the changes that I have been discussing in the preceding chapters, those which can be characterised as adaptive have been taking place against a background of contact between nonstandard and standard varieties. One method of modelling contact of this sort has been the construction of 'overall patterns' under which the systems of related dialects are subsumed (Trager & Smith 1951, Stockwell 1964). According to one perspective, these patterns are primarily descriptive frameworks for capturing structural relationships among dialects, cf. the notions of 'diasystem' or 'dialect cohesion' in Weinreich 1954, Anttila 1972 (282ff) and Mattheier 1979 (174ff). Each of the phonological elements in a diasystem is designed to express a particular correspondence between phonemes in different dialects. A more radical interpretation of the notion of dialect cohesion is that it is a necessary component in any model of cross-dialectal communication. The assumption here is that successful communication between speakers of different dialects points to the reality of polylectal competence. That is, a speaker may achieve at least passive competence in dialects other than his own by 'internalising' a unified grammar which subsumes all the dialect differences he has to deal with. One of the strongest claims made about this kind of model is that the learner in constructing a polylectal grammar is applying an 'internalised comparative method' (Bailey 1972, 1973).

Within the framework of generative phonology, the construction of a polylectal grammar of English is generally assumed to involve the manipulation of rules rather than the restructuring of underlying representations. This is consistent with the claim that all dialects of English share an underlying structural identity and that divergence is simply a reflection of superficial differences in the organisation of late transformational and phonological rules (Chomsky & Halle 1968: 49, 54; King 1969: ch 3). If this is true, it follows that the sorts of adaptive change that arise directly out of contact between standard and nonstandard varieties proceed through the reorganisation of such rules, i.e. through addition, loss, simplification, reordering, inversion, or whatever.

However, recent studies of cross-dialectal misunderstanding have challenged the view that a panlectal grammar of English corresponds to any empirical reality (e.g. Labov 1973, Berdan 1977, Trudgill 1982). Some observed cases of communicative breakdown between speakers of different dialects can reasonably be assumed to indicate underlying grammatical mismatches (e.g. Harris 1982, L. Milroy 1983). It should be clear to anyone who is familiar with varieties of English other than SSE and its derivatives that this structural non-identity extends to the phonological level (see Chambers & Trudgill 1980: ch 3). In other words, the phonological systems of different dialects are in many cases not isomorphic. The structural disparities are often of such magnitude that it is by no means obvious how they might be accommodated within a polylectal system. Nor is it obvious how adaptive change in situations where such structurally divergent dialects are in contact might adequately be accounted for in terms of the manipulation of low-level rules.

At the phonological-lexical level, differences between a borrowing dialect A and a lending dialect B may include the following (cf. Weinreich 1966: 18ff):

(1)

(a) A overdifferentiates a particular contrast in relation to B.

(b) There is a one-to-one systemic correspondence between A and B with respect to a particular contrast but there is a degree of mismatch in the lexical distribution of the phonemes in question.

(c) A underdifferentiates a particular contrast in relation to B.

All three types of correspondence are represented in the effects of contact between nonstandard HE and standard varieties which I have been discussing throughout the preceding chapters.

An example of overdifferentiation in HE is provided by the SUS /əi/ : /ɑe/ contrast which corresponds to only one phoneme in standard varieties (e.g. RP):

(2)

SUS		RP
/əi/	die	/aɪ/
/ɑe/	dye	

The pattern in (1b) is illustrated by the correspondence between basic BV /ɛ/ : /ɛ̈/ and RP /ɛ/ : /ɪ/:

(3)

BV		RP
/ɛ/	less	/ɛ/
/ɛ̈/	yes	
	kiss	/ɪ/

BV /ɛ/ corresponds directly to RP /ɛ/ in a set of items which includes <u>less</u>; BV /ɛ̈/ is the counterpart of RP /ɩ/ in a set which includes <u>kiss</u>. However, there is a small lexical class (<u>yes</u>, <u>get</u>, <u>yesterday</u>, etc.) which has /ɛ̈/ in BV but /ɛ/ in standard varieties (see 3.5.6). As an example of pattern (1c), we may cite the underdifferentiation of basic BV /ɔ̈/ : /ʉ/ in relation to the RP /ʌ/ : /ɷ/ : /u:/ contrast:

(4)

BV		RP
/ʉ/	<u>pool</u>	/u:/
/ɔ̈/	<u>pull</u>	/ɷ/
	<u>dull</u>	/ʌ/

Each of the patterns outlined in (1) presents its own difficulties to any speaker seeking to adapt to some external norm.

In theory, coping with pattern (1a) should not prove too difficult. All the adapting speaker apparently has to do is implement a strategy for neutralising a native contrast that is not present in the external model. This prediction tallies with the dialectological principle that phonological mergers tend to spread at the expense of distinctions. Changes in BV over the last 120 years or so bear this out to a certain extent. For example, the following contrasts which are overdifferentiated in relation to standard norms have declined or disappeared during this period: /əi/ vs /ai/ (<u>die</u> ≠ <u>dye</u>); /ɔ̈r/ vs /ɛr/ (<u>urn</u> ≠ <u>earn</u>); /or/ vs /ɔ:r/ (<u>hoarse</u> ≠ <u>horse</u>) (see 1.4.5 and 3.5.3). However, one of the most striking aspects of nonstandard varieties is the resilience of overdifferentiated categories in the face of standardising pressures. This phenomenon can probably be ascribed in part to the power of covert prestige, but in many cases there appear to be additional, functional pressures operating to maintain linguistic distinctions that are not available in standard varieties. (See the discussion of HE dialect maintenance in Harris 1982.)

A different task faces the adapting speaker in cases where there is a one-to-one correspondence between particular phonemes in the borrowing and lending varieties but a degree of divergence in their lexical incidence (pattern (1b)). Here alignment to the external norm involves lexical redistribution. Adaptation in example (3) entails identifying the subset of basic BV /ɛ̈/ items that contain /ɛ/ in standard varieties and transferring them into the BV /ɛ/ class. As we have seen, adaptive lexical transfer of this sort shows up synchronically as sociolinguistically constrained alternation between native and borrowed variants. I have argued (5.2.2) that it is misguided to seek to explain such changes in terms of the reorganisation of phonological rules.

An especially difficult problem faces the speaker who attempts to adapt to some external model when the latter contains contrasts that are overdifferentiated in relation to his own system (pattern (1c)). Here adaptive change cannot be a matter of manipulating low-level rules. Rather what is involved is massive restructuring of the native system. For example there is no general phonological rule that will enable a BV speaker to convert his native /ʉ/ : /ɔ̈/ opposition into the equivalent RP 3-way contrast given in (4). The task is doubly difficult in such cases, since the learner not only has to 'add an extra phoneme' to his native system but obviously also has to learn a completely new pattern of lexical distribution. The complexity of such a task appears to be a major impediment to the successful acquisition of overdifferentiated contrasts by adapting speakers. (Cf. Payne's 1980 discussion of the only partly successful acquisition of the Philadelphia 'lax' vs 'tense' /æ/ pattern by out-of-state children.) The speaker who does attempt the task risks making 'mistakes' in the form of hypercorrective allocation of items to 'wrong' phonemic classes (see the examples in 4.2). In many instances, we may presume, the difficulty of the exercise is enough to discourage its being undertaken in the first place.

Note what the acquisition of an overdifferentiated contrast involves for a hearer who allegedly constructs a polylectal grammar in order to comprehend varieties other than his own. Not only has he to lexicalise a contrast that is not present in his original system; but he also has to adopt some kind of neutralisation rule which will prevent the newly-acquired contrast from surfacing when he speaks his native dialect. This seems to me to be a ludicrously complex model of what speakers do in situations of dialect contact. It is unlikely that they have to perform so much structural reorganisation in order to understand other dialects, let alone in order to carry on speaking their own. It is incorrect to assume that complete structural alignment at the phonological level is a necessary prerequisite for successful cross-dialectal communication. Listeners obviously rely on a good deal more than phonological information in the initial stages of decoding a message. Aspects of the syntactic, semantic, discourse and real-world context are generally sufficient to override potential difficulties associated with mismatches between the speaker's and hearer's phonological systems. Sometimes a structural mismatch may be so great that it does lead to an impairment in communication (see the examples in Harris 1982 and L. Milroy 1983). However, in general it is fair to say that cross-dialectal understanding succeeds in spite of structural differences rather than because of complete structural identity.

There is a good case for viewing a speaker's receptive competence in dialects other than his own as resting on the implementation of ad hoc comprehension strategies rather than on the extension of rules which may form part of his productive competence (see Matthews 1979; Smith & Wilson 1979: 197-198; Trudgill 1982). Similar adaptive procedures, I have been arguing, are followed in types of change where speakers of one dialect seek to align their production with the observed output of speakers of another dialect. In particular, this occurs in situations where internal evolutive change has produced a degree of structural mismatch between the 'borrowing' and the 'lending' varieties. Rather than manipulating low-level rules which supposedly mark the differences between the dialects in question, the speaker implements essentially ad hoc borrowing procedures. The ad hoc nature of this sort of adaptive strategy manifests itself as change on a lexeme-by-lexeme basis.

Hypothesising that adaptive change proceeds by rule manipulation may be fun, but it implies that something structurally more significant is going on than may actually be the case. In fact all that may be involved at least initially is phonemic redistribution, the cumulative effect of which may only incidentally have structural consequences. In many cases alignment with the lending variety is only superficial and has no impact on the phonological system of the borrowing variety. On the basis of the evidence presented in the preceding pages, it is apparent that adaptive change in BV over the last century or so has involved reorganising the lexical incidence of phonemes without significantly altering their systemic organisation. There is no indication that BV is moving towards the adoption of anything equivalent to say the RP /æ/ : /ɑ:/ or /ʊ/ : /u:/ contrasts or the standard dichotomous pattern of vowel length. Those conditioned splits and mergers that have taken place have not necessarily done so along standard lines (e.g. the collapse of the DON : DAWN distinction). The implication is that many areas of the phonology where BV exhibits structural divergence from the standard pattern have remained immune to adaptive change. This, taken in conjunction with the finding that some of the observed internal evolutive changes actually run counter to standard norms, presents a picture of nonstandard dialect maintenance in the face of standardising pressures.

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